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FEDERAL ROLE IN MEETING INFRASTRUCTURE NEEDS

HEARING

BEFORE THE

SUBCOMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

OF THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDRED SEVENTH CONGRESS

FIRST SESSION

ON

A REVIEW OF FEDERAL INVESTMENTS AND PRIORITIES IN NATIONAL PUBLIC WORKS PROJECTS

JULY 23, 2001

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ONE HUNDRED SEVENTH CONGRESS
FIRST SESSION

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[1]Note: The Environment and Public Works Committee had not reorganized to reflect the change in majority status of the Democratic Party in the Senate that occurred on July 10, when Senator James M. Jeffords of Vermont left the Republican Party to become an Independent. For this hearing, Senator Reid was acting as the Chairman.

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FEDERAL ROLE IN MEETING INFRASTRUCTURE NEEDS

MONDAY, JULY 23, 2001

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

The subcommittee met, pursuant to notice, at 9 a.m. in room 406, Senate Dirksen Building, Hon. Harry Reid (acting chairman of the subcommittee) presiding.

Present: Senators Reid, Voinovich, and Inhofe.

OPENING STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Senator REID. The Environment and Public Works Committee is called to order. This is a meeting of the Subcommittee on Transportation and Infrastructure.

Let me say to my guests here, the witnesses today, we're going to have Senators in and out of here during the day. Senator Inhofe was scheduled to be here. He's still scheduled to be here, but his plane is not here, I guess, because of the infrastructure someplace. Senator Voinovich will be here shortly. The testimony which you gentlemen are about to give will be taken down by a court reporter and be shared with the full committee. I am grateful that each of you are here.

Our physical infrastructure represents the backbone of our Nation and really of our economy. It gets neglected because of cost of repairs and construction accrue in the short run, while the benefits are enjoyed in the long run. Too often, short-term cost considerations preclude long-term benefits to productivity, safety, clean water and the quality of life.

Anyone living in a major metropolitan area can tell you that our highway and mass transit infrastructures are overwhelmed and unable to handle our current demand. The resulting congestion impairs productivity, reduces air quality and negatively impacts our quality of life. This problem is only expected to get worse as vehicle miles traveled continue to increase.

To improve the condition and performance of our highways and transit systems, the Department of Transportation estimates that we need to spend more than $50 billion each year, and this doesn't include the billions of dollars in new investments necessary to improve our aviation system and develop high-speed rail corridors.

Another key component of our Nation's infrastructure is built and sustained and maintained by the Army Corps of Engineers. The Army Corps' flood control projects protect lives and property, and their navigation projects keep our economy moving. Yet they have a backlog of $40 billion in fully authorized projects that are waiting for the first dollar funding, not to mention a $38 billion backlog of projects currently under construction.

The EPA is charged with protecting and expanding our Nation's drinking water supply and upgrading our waste water treatment collection facilities. These critical functions are at risk due to infrastructure funding shortfalls. The EPA has estimated that nearly $300 billion will be needed over the next 15 to 20 years to upgrade and expand our existing infrastructure to ensure the safety of our water supply. In March, the American Society of Civil Engineers released its 2001 report card for America's infrastructure, and gave our Nation's infrastructure a D+. The American Society of Civil Engineers estimates that we need to invest $1.3 trillion over the next 5 years to address our infrastructure problems.

More information on infrastructure needs detailed in this study is included in written testimony provided by the Society which will be placed in the record.

Just this past week, we saw both the importance and the fragility of our infrastructure when a train carrying hazardous materials derailed in a Baltimore railroad tunnel. This tunnel is 1½ miles long. The impact of this crash is disrupting the lives of those who live and work in Baltimore, and it should serve as a warning to all of us about the dangers we face if we don't adequately confront our Nation's infrastructure deficiencies.

Clearly, our infrastructure investment needs are substantial, but I fear our means of funding these is shrinking. The tax bill this Congress passed in May will cost trillions of dollars in revenues over the next 20 years if fully implemented. The surpluses are almost gone as we speak, but our infrastructure needs are still there.

I intend to serve as a person who looks at our Nation's infrastructure continually, and I'm going to look forward to working with my colleagues on this subcommittee and this committee and members of the Senate to ensure that our infrastructure gets the attention it needs. Now, the reason I say the "attention it needs," I think the only way we're going to get some of this is to start talking about what we don't have. I think we tend to ignore municipal government. We talk about our Federal highway system, but the people live in cities, urban areas. America is becoming more urban than it was, and people say, why would a Senator from Nevada care about urban problems? Nevada is the most urban State in America. Why, it's more urban than New Orleans; more urban than Atlanta—as a State, I should say Georgia, Louisiana, California, New York. It doesn't matter. We're more urban because 90 percent of the people in Nevada live in two urban centers. Only 10 percent live in rural Nevada.

So we have to start focusing attention on our cities and what we don't have. If a manhole cover blows off, Mayor, you're the one that gets the heat. We down here don't get the heat. If the roads are jammed in Atlanta, the mayor is the one that gets the problem there—Mayor Campbell.

So I look forward to the testimony from a distinguished panel of witnesses. We have four very successful mayors. I purposely picked the mayors that are testifying here today. I was somewhat prejudiced in the one from Las Vegas, but he's done an outstanding job. I would put Oscar up against any mayor in the country for being a passionate believer in what we need in municipal government. For someone that cares about the city that he represents, there is no one any stronger. There may be some as good, but no one any stronger.

So I'm happy to have you each here. I welcome each of you and the hands-on experience you bring to this topic. In addition, we have Robert Portiss from Tulsa, OK to speak on port issues, and Robert Guerrero who is from the General Accounting Office, GAO, who I've worked with in the past, and well represents our Government.

I thank each of you for coming. I look forward to your testimony. I do say that, Senator Voinovich, if you have an opening statement, I'm sure happy to have you make it. Around 4 o'clock, I have to go offer an amendment on the Senate Floor, so we have something to vote on today. So I'll ask you, in my absence, to make sure that if we haven't finished that you will, if you're able to be here, if you would take over. Senator Inhofe is detained, as I indicated earlier, because of poor infrastructure. He's stuck at an airport someplace.

If you have an opening statement, I'd be happy to receive it.

OPENING STATEMENT OF HON. GEORGE V. VOINOVICH, U.S. SENATOR FROM THE STATE OF OHIO

Senator VOINOVICH. I do. Thank you.

I'm really glad you're holding this hearing today, by the way, and I'll try to make sure that I'm here to hold the fort.

Senator REID. Thank you.

Senator VOINOVICH. I want to thank you again for conducting this hearing, Mr. Chairman.

Infrastructure needs have been the focus of some attention over the last two decades, ever since the 1981 report, America in Ruins, initially focused attention on the issue.

Senator REID. What was the date of that?

Senator VOINOVICH. It was 1981.

Senator REID. I would just interrupt you, Senator. You can remember during the 1980's, major magazines had lead cover stories about decaying infrastructure. We still have the decaying infrastructure, we just don't focus much attention on it anymore.

Please go ahead. I'm sorry to interrupt.

Senator VOINOVICH. We started inventorying. I was mayor of Cleveland at the time. We did an inventory of our own infrastructure to see what we needed to do about that.

Then in February 1988 in a report to the President and the Congress, the National Council on Public Works Improvements concluded that the quality of America's infrastructure was barely adequate to fulfill current requirements.

While there has been progress in the last decade at the Federal, State and local levels to better manage our public infrastructure, these efforts are undertaken sporadically and more on a stopgap

fashion, while large-cap investment in operation and maintenance needs are not being addressed.

I recognize that simply devoting more Federal resources to infrastructure needs is not the solution. The issue of appropriate Federal and State roles, adequate project evaluation, priority setting, and program efficiency and management must be addressed.

I believe the first step in dealing with the need for a coherent national infrastructure strategy is an assessment of our Nation's unmet infrastructure needs. You've got to know what they are before you can deal with them. I realize that even the concept of unmet needs is difficult to define and that every Federal agency will define the term differently. That is why as chairman of this subcommittee last year, I asked the General Accounting Office to prepare a survey of the unmet needs on information that the agencies have available in the major public infrastructure areas where Federal assistance is provided.

Specifically, I asked the GAO to report on the needs estimates of several Federal agencies, and I'm not going to go in and list each of them because I think you know what they are. In a just-released report, U.S. infrastructure agencies' approaches to developing investment estimates vary. The GAO provided a survey of the seven agencies' estimates for infrastructure investment, looked at how agencies compare in terms of how their estimates are developed and used, and examined the extent to which the agencies' procedures for developing the estimates embody practices of leading government and private sector organizations.

Of the seven agencies reviewed by GAO in the report, each estimated billions of dollars in investment needs. The figures range from the General Services Administration estimate of $4.58 billion over 1 to 5 years to repair public buildings, to the Federal Highway Administration's estimate of $83.4 billion per year over 20 years to improve highways. Independent assessment of our Nation's infrastructure needs, such as the one conducted by the Water Infrastructure Network (WIN), last year suggest that trillions of dollars are needed to address this country's drinking and waste water needs.

According to the report I requested from GAO, the agencies' infrastructure needs estimates cannot be easily compared or added up to produce a national estimate of investment needs because of the differences in the methods used, time periods covered, spending sources and purposes for their use. I'd be interested in hearing GAO's thoughts on how a national infrastructure needs survey could be developed. The GAO also looked at procedures each agency has in place for developing infrastructure needs estimates and whether they reflected some practices used by leading government and private sector organizations.

The GAO further examined the strengths and limitations of each agency's estimate. A number of the limitations identified by GAO suggest that many of the agencies needs estimates might be understatements of actual needs. I'd also like to hear GAO's thoughts on how these agency estimates could be more accurate. We've got to have the right numbers.

Mr. Chairman, congressional authorization of projects are a very important part of the process of developing and maintaining our

Nation's infrastructure. Equally important is having an adequate level of funding to construct, as well as operate and maintain these projects. It's no secret that this Nation has an aging national infrastructure, which we're going to be hearing about. There are a number of reasons why we have such great unmet needs. The most significant reason is the decreasing Federal investment in infrastructure since the 1980's, as you just pointed out. For example, GAO reported in February 2000, that infrastructure as a percentage of Federal spending has steadily declined since the late 1980's. At the same time, we're asking agencies to do more and more.

Last year, I conducted a hearing as chairman of this subcommittee to examine the Corps of Engineers' $38 billion backlog. At the hearing, I had a number of charts showing the breakdown by mission. In effect, what happened there is we increased the responsibility of the Army Corps of Engineers, having them take on environmental restoration projects, and at the same time cut back their dollars to about half of what they were in previous years.

So I strongly believe that Congress and the Administration need to develop a strategy to deal with these needs. Again, it gets back to how do you balance the infrastructure needs of the agencies the GAO looked at, and then, Mr. Chairman, in all due respect, the Congress is talking about building schools all over the United States of America. You know, can you do both of those things? I have to say that one of the reasons why some of the needs that our witnesses are going to talk about haven't been met is because we're off on some other agenda items, and quite frankly too many of them are the result of polling. You know, this is more popular. We had a Governor of Ohio who once said, never put anything under the ground. You never see it. You never get any credit for it.

[Laughter.]

Senator VOINOVICH. But the fact is, we all know what's happening in our cities around this country.

So I'm not going to go on. I'm going to ask that the rest of my statement be inserted in the record. I'm anxious to hear from the witnesses.

Senator REID. Senator Voinovich, one of the things that you and I could agree on is, I would be willing to sponsor legislation with you to outlaw polling.

[Laughter.]

Senator VOINOVICH. Except for the First Amendment, it's fine.

[Laughter.]

[The prepared statement of Senator Voinovich follows:]

STATEMENT OF HON. GEORGE V. VOINOVICH, U.S. SENATOR FROM THE STATE OF OHIO

Thank you, Mr. Chairman, for conducting this hearing today on the Federal role in meeting our Nation's infrastructure needs.

Mr. Chairman, infrastructure needs have been the focus of some attention over the last two decades ever since the 1981 report, *America in Ruins*, initially focused attention on the issue. In a February 1988 report to the President and the Congress, the National Council on Public Works Improvements concluded that the quality of America's infrastructure was barely adequate to fulfill current requirements.

While there has been progress in the last decade at the Federal, State, and local levels to better manage our public infrastructure, these efforts are undertaken sporadically and more in an "stop gap" fashion while large capital investment and operation and maintenance needs are not being addressed. I recognize that simply devoting more Federal resources to infrastructure needs is not the solution. Issues of ap-

propriate Federal and State roles, adequate project evaluation, priority setting, and program efficiency and management must be addressed.

I believe that a first step in dealing with the need for a coherent national infrastructure strategy is an assessment of our Nation's unmet infrastructure needs. I realize that even the concept of "unmet needs" is difficult to define and that every Federal agency will define the term differently. That is why, as chairman of this subcommittee last year, I asked the General Accounting Office (GAO) to prepare a survey of unmet needs based on information that the agencies have available in the major public infrastructure areas where Federal assistance is provided.

Specifically, I asked the GAO to report on the need estimates of seven Federal agencies: U.S. Army Corps of Engineers, Environmental Protection Agency (EPA), Federal Aviation Administration (FAA), Federal Highway Administration (FHWA), Federal Transit Administration (FTA), General Services Administration (GSA), and Appalachian Regional Commission (ARC). I requested GAO to focus on water resources (inland and deep draft navigation, flood control, and shore protection), hydropower, water supply, wastewater treatment, airports, highways, mass transit, and public buildings.

In its just-released report, *U.S. Infrastructure: Agencies' Approaches to Developing Investment Estimates Vary*, the GAO provided a survey of the seven agencies' estimates for infrastructure investment; looked at how the agencies compare in terms of how their estimates are developed and used; and examined the extent to which the agencies' procedures for developing the estimates embody practices of leasing government and private-sector organizations.

Of the seven agencies reviewed by GAO in the report, each estimated billions of dollars in investment needs. The figures ranged from the General Services Administration's (GSA) estimate of $4.58 billion over one to 5 years to repair public buildings, to the Federal Highway Administration's (FHWA) estimate of $83.4 billion per year over 20 years to improve highways. Independent assessments of our Nation's infrastructure needs, such as the one conducted by the Water Infrastructure Network (WIN) last year, suggest that trillions of dollars are needed to address this country's drinking and wastewater needs. These are impressive figures.

According to the report I requested from GAO, the agencies' infrastructure needs estimates cannot be easily compared or added up to produce a national estimate of investment needs because of the differences in the methods used, time periods covered, spending sources, and purposes for their use. I would be interested in hearing GAO's thoughts on how a national infrastructure needs survey could be developed.

The GAO also looked at the procedures each agency has in place for developing infrastructure needs estimates and whether they reflected some practices used by leading government and private sector organizations. The GAO further examined the strengths and limitations of each agency's estimate. A number of the limitations identified by GAO suggest that many of the agencies' needs estimates might be understatements of actual needs. I would also like to hear GAO's thoughts on how these agencies estimates could be made more accurate.

Mr. Chairman, congressional authorizations of projects are a very important first part of the process of developing and maintaining our Nation's infrastructure. Equally important is having an adequate level of funding to construct as well as operate and maintain these projects.

It's no secret that this Nation has an aging national infrastructure. If we continue to ignore the upkeep, and allow the deterioration of our infrastructure, we risk disruptions in commerce and reduced protection for public safety, health, and the environment. In my view, it is up to Congress to ensure that operation and maintenance funding levels are adequate and efficiently allocated to priority needs.

There are a number of reasons why the we have such great unmet needs. The most significant reason is the decreasing Federal investment in infrastructure since the 1980's. For example, GAO reported in February 2000 that infrastructure as a percentage of Federal spending has steadily declined since the late 1980's. At the same time, we are asking agencies to do more and more.

For example, last year I conducted a hearing as chairman of this subcommittee to examine the Corps's $38 billion backlog. At the hearing, I had a number of charts showing the breakdown by mission area for the Corps' construction appropriation by representative year from the decades of the 1960's, 1970's, and 1990's. The charts clearly showed the mission growth of the Corps into areas such as environmental restoration, remediation of formerly used nuclear sites (FUSRAP), and environmental infrastructure.

At the hearing, I also had another chart that measured our capital investment in water resources infrastructure since the 1930's shown in constant 1999 dollars as measured by the Corps of Engineers Civil Works construction appropriations. The chart showed that there has been a sharp decline from the peak in 1966 of a

$5 billion appropriation and appropriations though the 1970's in the $4 billion level to the 1990's where annual Corps construction appropriations have averaged only around $1.6 billion.

I strongly believe that Congress and the Administration need to develop a strategy to address the backlog of unmet needs in this country, and I fully intend to make meeting these unmet needs a priority in the Senate.

For instance, the condition of our Nation's water infrastructure has been a longstanding concern of mine. I like to use the example of Mayor Reid of the city of Mansfield, OH, who is facing having to raise sewer rates from $30 a month to $100 a month in order to comply with environmental regulations. I have also heard from a number of other Ohio municipalities about their water infrastructure problems at two meetings I held in Ohio on this issue during the last year. Senator Mike Crapo also conducted a field hearing on Ohio's wastewater infrastructure needs on April 30 in Columbus.

Aging water systems and increasing Federal requirements are placing a heavy burden on our communities. That is why I have introduced in the 106th and 107th Congresses the Clean Water Infrastructure Financing Act. The bill, S. 252, would reauthorize the highly successful, but undercapitalized, Clean Water Revolving Loan Fund (SRF) program at a level of $3 billion per year for 5 years. In comparison, Congress currently appropriates $1.35 billion for the program.

I am not advocating increased levels of Federal spending as a general matter, rather, spending our Federal resources on the right things, and among the right things that are not receiving adequate funding are many of the worthy projects and programs authorized by this committee. So often the attitude in Washington when approaching unmet needs is not to address anything that isn't high profile until there is a crisis. This is not the way to deal with things.

I would be interested to hear if today's witness could possibly shed some light on what they see as the role of the Federal Government in infrastructure funding. To what extent is investment in our Nation's infrastructure a Federal responsibility? How should the Federal Government finance public infrastructure investments? Who else should be involved? What are other non-capital ways to address our unmet needs?

Mr. Chairman, thank you for including the findings of the GAO report I requested on today's agenda for this hearing. I just got the final report on Friday, and I look forward to reading it in greater detail. I would also like to thank the GAO for their hard work on the report, and I look forward to hearing from Mr. Guerrero about the details of report and what conclusions may be drawn from it.

Finally, I look forward to the testimony of today's witnesses who I'm sure will testify to their own respective infrastructure needs.

Thank you.

Senator REID. We're happy, as I've indicated, to have each of you mayors, and you, Mr. Portiss, with us. We're going to start with Mayor Morial, Mayor Campbell, Mayor Goodman and Mayor Williams.

STATEMENT OF HON. MARC MORIAL, MAYOR, NEW ORLEANS, LA AND PRESIDENT, U.S. CONFERENCE OF MAYORS

Mr. MORIAL. Thank you very much, Mr. Chairman.

Senator VOINOVICH. Pardon me, Mr. Chairman.

I'd just like to say that there are a couple of people here. Do you mind if I do this?

Senator REID. Of course not.

Senator VOINOVICH. Marc, I'd like to welcome you. Your dad and I were very, very good friends.

Mr. MORIAL. Thank you.

Senator VOINOVICH. Dutch and I, we served as mayors together, a wonderful man, and I'm sure that he's proud of the fact that, you know, he's happy that you're sitting in the chair that you are.

Mr. MORIAL. Thank you, Senator.

Senator VOINOVICH. Of course, Mayor Williams and I have spent a lot of time together, haven't we, Mayor? We welcome you and the other mayors that are here today. Thank you.

Senator REID. George, when I said to Mary Landrieu, you know, these people in New Orleans, can't they come up with first names? You've got Moon and all these others. Anyway, I'm glad that you have one.

Mr. MORIAL. A nickname sells in a poll.

[Laughter.]

Mr. MORIAL. Mr. Chairman and members of the subcommittee, let me thank you all for having this hearing. I am Marc Morial, and for the record, Mayor of New Orleans and also president of the U.S. Conference of Mayors, a bipartisan organization that represents mayors of 1,200 cities with populations of 30,000 or more.

We're delighted that you're having this hearing and we hope that all four of us can shed some light and some information on where we are and where we need to go.

I simply want to begin my testimony by thanking you, Mr. Chairman, and the committee for your leadership in crafting the agreement on the brownfields legislation, S. 350. This is a piece of legislation which has been important to the mayors and to the Conference of Mayors for a number of years, and if we're successful in getting that legislation passed, it's going to give us yet another set of tools to deal with the problem of abandoned commercial and industrial sites in so many of our cities.

I want to talk to you today about a couple of things, and I want to frame my remarks by saying that local infrastructure needs are no longer a local issue. Why are they no longer a local issue exclusively? As you observed, Senator Reid, Nevada is a heavily urbanized State. Most people in the United States would be surprised to hear that. But even more importantly, it tells the story of what has happened in our Nation, particularly in the past 10 to 20 years. That is, cities and their suburbs have become the economic units that are the engine of the American economy. We argue very forcefully that investing in the infrastructure is good not only for the city and its residents, but is good for the Nation as a whole.

Recently, we released the fourth of our studies on the metropolitan economies of the Nation. This study, put together by DRI and Wharton Econometrics outlines the significant role that cities play in the American economy today. Very interestingly, of the 100 largest economies in the world, almost 50 of them, 47 of them are American metropolitan areas. Very significantly, many of our metropolitan areas have economies larger than nations. New York City, for example, has an economy larger than that of Australia. My own city is larger than Syria or even Vietnam in terms of its economic output.

That is why we hope that there is a fundamental understanding that we're going to seek to promote by the Congress and the White House, business leaders in this Nation, and the American public at large, that by investing in the infrastructure needs of American cities will do the Nation's economy some good. If we disinvest in American cities, if we ignore the needs of American cities, the cost is going to be paid by everyone. Our cities are transportation centers. Our cities are technology centers. Our cities are centers of higher education and learning. Our cities are the areas where the new immigrants are flocking. Our cities produced, if you will, bet-

ter than 85 percent of the new jobs created in the decade of the 1990's. So I wanted to share that with you.

What are our priorities as cities, as metropolitan cities? We surveyed our members, Senator Reid and Senator Voinovich, and they outlined three very important areas. First, our No. 1 priority is in the area of surface transportation. That's, of course, self-evident. It's roads. It's bridges. But it's also transit and rail. It's rail transportation. TEA–21 and new start moneys that have been allocated since then have put maybe 150 to 200 new rail start projects on the books in American cities. We broke ground in my own city of New Orleans on a new Canal Street streetcar line. We're working, in addition to that, on two additional projects for which we've received commitments from this Congress. Importantly, with all of the issues of congestion, with all of the issues of population density that many cities are beginning to face, investment in surface transportation systems with a new emphasis on rail, we think is a smart move for the American economy.

Second, our members identified water system needs. Many of our cities are old. Our drinking water systems, our wastewater treatment systems and pipes have become old and have begun to crumble. Combine that with the fact that the Congress and the agencies have had a very aggressive enforcement effort under the Clean Water Act to force cities big and small to make significant changes, significant investments in their water infrastructure systems. Indeed, we are operating in New Orleans under a consent decree through which we're going to have to spend as much as $400–$500 million overhauling our city's wastewater system, simply the wastewater system, not the drinking water system and not what is very crucial to us, the drainage system to protect us from flooding.

So water system needs are tremendous throughout American cities. You don't have to be the proverbial rocket scientist to understand that the quality of drinking water affects not only the residents of a city, but also affects visitors to the city. You don't have to be a rocket scientist to understand that the quality of the wastewater system affects not only the city directly, but also an entire region and the American economy at large.

Third, our members identified schools and libraries as a tremendous infrastructure need. I would only add a personal observation to the schools and libraries infrastructure need. What we've done in my own State, and I would conjecture in many other States, and even here at the national level, is invest heavily in the infrastructure of the correctional systems. If we did for the schools in the next 20 years what we've done for correctional systems infrastructure in the last 25 years, we could and very much will make a significant dent in the tremendous school infrastructure needs that many of our urban communities face, and not only urban communities, but our entire metropolitan communities.

I would add one additional point to the infrastructure. The mayors are united in supporting those bills that would allow Amtrak to access the private markets for its infrastructure needs. Why is that important? Because Amtrak's service is something that in many respects connects smaller- and medium-sized communities to larger communities. Amtrak service is also something with the advent of high-speed rail that we think could take pressure off both

the highway system and the civil aviation system when you're talking people traveling distances from 300 to 500 miles, which is why we strongly urge the Congress to act on Amtrak legislation.

To sum up very quickly, the point I hope that we all leave you with today is that our local infrastructure needs are not simply a local issue. But to also add, we are not here as mayors who are not investing our own tax dollars in our infrastructure needs. Every single one of us has an aggressive capital program where we're investing in city streets, curbing, gutters, water systems; where we're investing in public schools, libraries, parks and recreation facilities. But the investment that we can command, the investment that we can muster alone isn't enough to deal with the tremendous needs that the Nation has.

So we come today looking for partnership, not with a tin cup, but looking for a partnership with the Federal Government because as our cities go, so goes this Nation. I can say to you that a significant investment in the infrastructure of American cities is going to do the American economy very well.

You pointed out in your opening testimony the situation in Baltimore. That 1½-mile railroad tunnel is 100 years old. I understand from reading the papers and from talking to people that it hasn't had any significant investment in that period of time. There are tunnels. There are bridges. There are rail systems all across this Nation with tremendous needs that we need to address, lest it begin to affect the economic performance of our major industries.

So I thank you for your time.

Senator REID. Your full statement will be made part of the record and we'll have some questions for you.

Mr. MORIAL. Thank you.

Senator REID. Mayor Campbell, if you—and I should have alerted Mayor Morial—try to keep to 5 minutes as well as you can. You know, we're not going to very strict, as you saw with Mayor Morial, but try to keep to that so we have time to come back, because there are many things in your statements and just basic knowledge you have that we'd like to get to.

STATEMENT OF HON. BILL CAMPBELL, MAYOR, ATLANTA, GA

Mr. CAMPBELL. Don't worry, Senator Reid, I'm going to be brief, no matter how long it takes me.

[Laughter.]

You're free to use that anytime you like, Senator.

It's a pleasure to be here. Thank you, and Senator Voinovich, I appreciate very much——

Senator REID. I will use it.

Mr. CAMPBELL.—That's where I got it.

I appreciate very much your having us here. In many ways, both of you understand the problems that we're speaking about, so it's like preaching to the choir. But nevertheless, it's important for the American public to hear about these issues.

Not only do I come to testify on behalf of the city of Atlanta, one of the fastest growing metropolitan areas in the United States, but also I chair the Transportation and Communications Committee for the U.S. Conference of Mayors as well.

I've been here and been a part of the deliberations and discussions. I testified on behalf of TEA–21 and AIR–21, and we appreciate the leadership that was shown on both of those very important issues. As you heard Mayor Morial, we certainly hope that RAIL–21 will be the next prong that will help us to improve the Nation's infrastructure.

Let me give you some sense of overview, Mr. Chairman, to tell you where we are, and Senator Voinovich.

The issue of infrastructure in this country is the most critical issue that cities will face. I spoke this morning to a U.S. Congress issue on competitiveness in cities, and my thought is that other than the issue of public safety, the issue of infrastructure and who will pay for the infrastructure for cities will be the most pressing issue that this country will face over the next 10 years.

You heard Mayor Morial talk about the $400 million they're spending. Well, I've got a better story. We have spent $1 billion since 1990 to construct and expand wastewater and stormwater collection, treatment and control facilities to meet Federal and State environmental regulations. We have spent an additional $2.3 million for watershed protection projects. It's estimated that we will spent $3.2 billion over the next 13 years to upgrade our system. That's an astounding amount, Senators, and I must tell you that puts a serious burden on the city's budget. While most people understand that the metropolitan area is made up of over 4.5 million people, the city of Atlanta proper is about 500,000 people. We have an approximate income range of about $36,000, with 25 percent of our families making under $15,000 a year. We simply don't have the money to pay for that.

But yet it's mandated, and I must tell you, we have about 1.5 million that come into our city each and every year. Now, if you magnify that across the country, the estimates are about $300 billion alone just in wastewater infrastructure needs, and about $1 trillion in total water resource demand in cities across this country.

If that's not looked at very seriously, Senators, there is no doubt that we will see the same sort of wastewater calamity that we're seeing with the Baltimore rail corridor. We have some estimates that 75 percent of all the bridges in this country are substandard.

So we understand that if we don't invest in this infrastructure redevelopment, then we're going to see America's cities, and ultimately the Nation, crumble. You heard Senator Voinovich talk about the Governors saying, don't put any money in things under the ground. Tragically, that's the view by most citizens, and that's the view by most elected officials. Because unless it's a sexy item, unless we're seeing something that captures the Nation's attention like the rail corridor explosion in Baltimore, people don't want to spend the money for it. The moneys that are necessary are enormous and the complexity of the issues are also enormous.

We've got surface transportation issues. You see in the headline on the front page today, the region's ozone problem lies South. That's with regard to Washington vis-à-vis Atlanta. We have a tremendous ozone problem, a non- attainment problem, a traffic snarl problem. It's a suburban nightmare. We have more time spent in commuting in Atlanta than any other city in the Nation. As a result of that, for 2 years we were not able to spend any of the trans-

portation money. It ended up being a plus for the city of Atlanta because we were able to renovate old roads and repair bridges, spend it on sidewalks, some of our mass transit money. But ultimately, it's an ongoing problem for all of us.

We also, as I told you, you may know, as you heard about one of your colleagues being held up coming in on the flight, we have the busiest airport in the world. When I took office in 1993, we had 57 million passengers; last year, 81 million passengers. We're estimated to have 120 million passengers in 2015. We are spending about $6 billion on one of the few projects that's been approved for a fifth runway. We, as you saw by some of the recent news, some of the delays with regard to air transportation. Luckily, we were not in the top 10 with regard to delays in airports, but if we don't see more money that's invested, and luckily because of AIR–21 we will have some availability of those funds, we're going to see more delays with the Nation's infrastructure with regard to air.

So whether it's water, wastewater, whether it's surface transportation, whether it's aviation, whether it's rail, you understand, Senator and Senator Voinovich, that unless the Federal Government becomes a more meaningful partner in terms of providing more funding, then we're going to see a total collapse of America's cities. When the cities collapse, the Nation's economy will collapse. That's a calamity that none of us want to see.

So what I hope that you will look at, Senator Reid, is perhaps greater assistance with low interest loans, grants and technical assistance to communities to address some of these urgent needs. Otherwise, I think we're going to see further erosion in the very strong economy that we've had in the last 10 years, but which seems to be a bit more fragile today. We certainly hope that we'll get the cooperation of the U.S. Congress to help us in that effort.

Senator REID. Your full statement, which I have read, is excellent. It will be made part of the record.

Mayor Goodman.

STATEMENT OF HON. OSCAR GOODMAN, MAYOR, LAS VEGAS, NV

Mr. GOODMAN. Thank you. Good afternoon, Senator Reid, Senator Voinovich.

It's an honor to be here today representing the city of Las Vegas. I'm a lot more provincial than my colleagues. I'm not worried about the whole world. I'm worried about my city. I love the city of Las Vegas. I got there in 1964. It had 70,000 people as a population. It now, as a city, has 555,000. The county when I got there had about 100,000. We're now up to 1.4 million. In the year 2020, we're going to be at 2.3 million. It's incredible the kind of growth that we have, and it affects everything that takes place within southern Nevada.

We are at a point of bursting, and unless we reach the issues which affect our quality of life and keep it the same as it is, then we, too, will suffer dramatically, both economically as well as in the standard of living that we're used to here.

When I got to Las Vegas, I had $87 in my pocket. I had a good education and was able to make a very, very good living there. I played myself in the movie Casino, and represented all those folks

in real life. I thought everything was beautiful. I used to walk down to the courthouse and look to either side of the street. The trees seemed nice. The roads seemed good.

Then when I was elected mayor 2 years ago, walking down the same streets, I saw that the streets were cracking. The trees were getting old. Everything was withering away. I pledged to myself that we were going to revitalize the city of Las Vegas, the downtown of Las Vegas, or else we would have serious problems because we're being challenged every day in our primary industry, which is our lifeblood of gaming and tourism, by having challenges throughout the country by other people having gaming—Indian reservations springing up in California. It's vital that we reach the question and issues of our infrastructure and our transportation, or else Las Vegas won't be the kind of place that it is.

The first thing we have to do is we have to widen I–15. That's crucial. Our basic clientele comes in from southern California. They drive in during the weekends. It takes them sometimes 6, 7 hours to get there. If they go 40 minutes away to an Indian reservation, the Pala Tribe, they're able to get basically the same thing and not have the aggravation of the travel. So we have to open up that highway.

We need a speed train. We've been talking about that. There's no reason why we shouldn't be the partner for that because it goes to the very economic lifeline of our community. Once we get into town, we have to have our fixed guideway, the monorail going down from the Strip all the way into the downtown area, down to the Fremont Street experience, because without having Fremont Street healthy, the rest of the valley is going to fail. It's going to be like a reverberating effect, and affect all of southern Nevada. So we need that.

These are issues that really are everyday issues, but they're issues of the infrastructure, and unless we have some help from the Federal Government, we're not going to be able to do it. We have a long history of partnerships, as you know, with the Federal Government. Las Vegas really was made out of the pioneers who built the Hoover Dam; the folks who were out at the Nevada test site. These were vital members of our community; Nellis Air Force Base. There was a very symbiotic relationship between the city of Las Vegas and southern Nevada and the Federal Government. We depended upon the Federal Government in order to take care of the excesses, to build this quality of life that we've come to enjoy.

If we're cutoff, and I get the sense that perhaps with this Administration it's going to be tougher getting the funds that are necessary in order to take care of ourselves in southern Nevada, and therefore in that whole Southwest sector of the United States, it will have this kind of effect, which will be catching to the entire Southwest and to southern California, and it will be disastrous.

So I ask you to join with us in providing us the necessary funding. The mayors, my colleagues were talking about the wastewater treatment. We're going to have to spend $1.2 billion for our wastewater, and we have a model in our Southern Nevada Water Authority as being a local, inter-regional group that's been able to solve the most important problem that existed 10 years ago, and that was water quality. We now have it under control, with the

help of the Federal Government, with the help of these inter-local agreements and interstate agreements. But if we lose our partners, then the very problems that we were able to solve will not be able to be solved in the future.

So I implore you to look at us as your partner, to recognize that we need a new airport there in Ivanpah, and to say that we don't just belies the truth. In order to have a new airport, in order to keep the economy healthy, we need to look to you for some help. We're ready to stand up ourselves and to do what we have to do in order to get the necessary funding that we're able to get, but we're limited, and the Federal Government really is our partner and has to continue to be our partner in order to sustain the quality of life that we have.

Las Vegas is a great place. It represents all that America is all about, free enterprise, capitalism. We do very, very well, but we can't do it by ourselves.

Senator REID. Thank you very much, Oscar.

We'll now hear from the Mayor of the District of Columbia, Anthony Williams.

STATEMENT OF HON. ANTHONY WILLIAMS, MAYOR, WASHINGTON, DC

Mr. WILLIAMS. Senator Reid, thank you for having me here today. I also want to thank Senator Voinovich for his support over the years and partnership with the District and working hard with us in so many, many different ways, recognizing his own role as a mayor and his understanding, as you do, Senator, of the needs of our metropolitan areas in our country.

My testimony has been submitted for the record, so I'm just going to hit some highlights within the allotted time, recognizing that both you and Senator Voinovich have Thanksgiving plans.

The District has made, I think by everyone's observation, some tremendous progress financially, tremendous progress in diversifying our economy from one relying exclusively or predominantly on the Federal Government, to one now relying on health care, technology, services and tourism.

Improvements in services, we believe a reverse in migration now, people moving back to the city. But the question is, how do we sustain that recovery? Clearly, we have to focus on our infrastructure, and in so doing necessarily have to focus on our unique relationship with the Federal Government. I'll focus on just a couple of things. We have one of the highest levels of commuters, after Chicago. We are third in the country, in the number of commuters coming into our city. We also have in our city one of the highest utilization rates for our Metro, and we're proud of that. But therein lies a problem that we're facing, and that Atlanta is facing, a problem with air pollution and the impact on our infrastructure. We see Metro as a way to address this because we are also one of the cities with the highest usage for Metro.

The problem is, the city pays 40 percent of Metro's expenses, and we're looking at just over a 25-year period in which $3 billion is needed for an infrastructure renewal program. This is over and above what we've already pledged in Metro improvements. In addition, Metro capital needs are underfunded by $100 million annu-

ally, representing another $40 million in unfunded District obligations. The fact is, the District is making serious expenditures supporting Metro, and is also engaging in some unique strategies to pursue improvements in Metro's infrastructure. To give you an example, on New York Avenue, there is a unique public-private partnership with the Federal Government, the District and local property owners who have come together essentially on a one-third, one-third, one-third basis to put in a new Metro station on New York Avenue. But we need help to continue that.

Highways, as Mayor Morial mentioned, are a key part of our surface infrastructure, and here in the District we really have a tale of two cities. For our non-transit transportation infrastructure, we have the Federal City, a city of less than 450 miles of roads, and a $250,000 annual per-mile fund for maintenance and improvements. Not surprisingly, 70 percent of these roads are in good or excellent condition. The other city is the local city with nearly 650 miles of roads that have just come out of a 5-year period of almost no investment whatsoever. While we're spending now $8,500 per year per mile for maintenance or improvements, 50 percent of our local roads are still in fair or poor condition. We have to address that.

We have to address the need for surface rail in our city. Being one of the most congested cities in the country, our Metro has only a limited amount of room for expansion. We believe that surface rail can provide some of that capacity and bring back the glory days of light rail in our city, which once led the country in light rail.

Our gateways are important, not only to our city as a metropolitan area, but our city as our Nation's capital. Clearly, Senator Sarbanes has recognized this, our partner Congressman Steny Hoyer has recognized this, and a bipartisan group in the Congress has recognized the fact that the entrances to our Nation's capital are not befitting the entrance to America's capital. New York Avenue, particularly South Capitol Street are in need of tremendous amount of investment to make them serviceable, let alone make them the kinds of entrances and gateways to our Nation's capital that they should be.

Finally, I would join with my fellow mayors and talk about the need of our city in infrastructure as it comes to water pollution. We all know about the progress that's been made on the Potomac River, but there is a clear need for improvement in our overall watershed. A big reason for the need for that improvement is the Anacostia River. Once the birthplace of the U.S. Navy and a key historic area of our city, the Anacostia River is now one of the most polluted rivers in the country. We see a need for $1 billion of investment to provide for a combined sewage overflow strategy that will get the river up to where it should be in terms of water quality, and will allow us to redevelop this watershed, redevelop this waterfront in a way that again is not only becoming to our Nation's capital, but also uses this river as a way to unite two parts of our city that are presently divided, unfortunately, in so many, many ways, including by race and by class.

With that, I'd like to thank again the committee for allowing me to testify today, and of course I'm ready to answer any questions you may have.

Senator REID. Mr. Portiss, we're going to ask you to withhold your testimony. We're expecting Senator Inhofe and I'd like him to be here when you testify. So if you just sit where you are, relax, we're going to ask some questions to the mayors at this time, and proceed with you and the GAO at a later time, if you just relax. I appreciate your patience.

First of all, Mayor Williams, let me say this. I was chairman of the District of Columbia Subcommittee on Appropriations for a number of years. I saw then the tremendous need for help, and I tried to develop a number of pilot projects. But frankly, the mayor at the time wasn't interested. I called him into the office, and he was interested in other things. So it kind of soured me on trying to do some novel things.

I've been very impressed with you since you showed up as part of the new Control Board, or whatever it was called, and then became Mayor. I really believe that the United States cannot have a city that is in the deep trouble from an infrastructure standpoint that Washington, DC is. You've been very kind in not describing some of the real serious problems. I mentioned the manhole covers. You know, it's a Federal City. It's a lack of enough money to take care. Tell us briefly why we have manhole covers blowing into the air, which is dangerous for everybody. Why is that happening?

Mr. WILLIAMS. The manhole covers in Georgetown area are really the tip of the iceberg. What they represent, these manhole covers blowing up, is the fact that the infrastructure in Georgetown, whether it's electrical utilities, gas lines, water and sewer, in essence, all the utilities, and infrastructure hasn't really been updated. One of the primary reasons is that the Metro never went into Georgetown, there was never an occasion to redo that infrastructure. Certainly as you've pointed out, Mr. Chairman, we haven't had the funds over the last 15, 20 years to do that infrastructure improvement ourselves.

So it's now only with manhole covers exploding and a crisis on our hands that we've begun a comprehensive, systematic effort to begin rebuilding that infrastructure. But as I mentioned earlier, while we've got an infrastructure effort underway in Georgetown, while we're doing an enormous amount of repaving, we can't sustain this pace for longer than a 3- or 4-year period.

The real tragedy would be to have this comeback of the city grind to a halt for lack of sustained investment and effort.

Senator REID. Mayor, the reason I mentioned you initially, my home is in Nevada, but I live here. I spend a lot of time here also. I spent 18 years or so in the suburbs, and I've recently moved into the District which, you're right, it's really being revitalized. But it's my understanding that some of the water systems, the pipes that carry water are 100 years old in the city. Is that true?

Mr. WILLIAMS. There are very old pipe systems, Mr. Chairman. As a matter of fact, I believe that we still have wooden pipes in our city. They're that old.

Senator REID. Even though we had manhole covers blowing way into the air, and we were very fortunate someone hasn't gotten

hurt. I mean, this is like a mortar going off. I think that you're going to see you're going to get very little help this year. I'm familiar with the appropriations process, and I think that you need to be more outspoken and demand more help. The way I've seen this, it gave the city such a bad reputation that in effect we had to have someone come in and start running the city. It's only now that you're taking the city back. So I'm sure you feel somewhat reserved in going and asking for you really need. But I think you're going to have to pass that point and start asking, because unless you ask, it's not going to happen here.

So I just say that you're going to have, and I think all of you have been very nice here today and talking about generalities, water systems, sewer systems, streets, light rail and all these things you need. But I think we're going to have to start becoming more specific as to what the problems are.

You know, Atlanta and Las Vegas are a lot alike. Even though you're a much older city, the growth in the two areas has just been phenomenal. New Orleans and Washington, DC are a lot alike—older cities, moderate growth, but old infrastructure. You know, I still remember, and I've said to John Breaux a number of times, this thing I watched on public television, Mayor Morial, about the water situation in New Orleans. Those pumps are ancient.

Mr. MORIAL. We are built on a slough, and actually, Senator, we are a city that sits underwater. So all of our water—our wastewater and we have a separate, independent, you all call it stormwater, we call it drainage system—we have a system of in excess of 100 pumping stations throughout the city, which makes our water system one of the largest users of electricity and natural gas in the city.

So we not only have the pipe problem, we also have the pumping station problem.

Senator REID. How old are some of those pumps?

Mr. MORIAL. How old are they?

Senator REID. Yes, I saw that. It's hard to believe.

Mr. MORIAL. One hundred years old.

Senator REID. Oscar, with Las Vegas growing the way it is, growth has been phenomenal—the fastest-growing community, fastest-growing State. We've held that for 8 or 10 years. What do you see as the most demanding need in this vibrant city of Las Vegas? Is it water? Is it sewer? Is it streets? What is it?

Mr. GOODMAN. The good news, Senator, is none of our pipes are 100 years old, because we're not 100 years old. Our 100th anniversary, our centennial, comes up in 2005. So that's the good news. The bad news——

Senator REID. Most everything is new that you put in. I mean, we've had so much growth there.

Mr. GOODMAN. But the bad news is that unless—everything is interrelated. When I became Mayor, I wanted to be the hands-on Mayor as to the regional issues. So I appointed myself on the regional planning coalition, the regional transportation, regional flood, the Southern Nevada Water Authority—those kinds of agencies—to get a handle on what takes place in the city. I'm convinced that everything has an interrelating effect.

I'll give you an example. We have air quality problems, and the EPA is looking at us very carefully. We seem to be getting the carbon monoxide issue under control, but once you take care of that we have the PM_{10}, which are the dust particulates. Then, we have to worry about the ozone. Basically all this comes about as a result of traffic.

So in answer to your question, Senator, I think that we have to address the issues of traffic. We're the largest city in the United States now that doesn't have a fixed-rail system, and that's why it's so crucial that we have the monorail which will go down the Strip into the Fremont Street Experience and into the downtown. That accomplishes an awful lot of things. It helps us economically, of course. It takes the cars off the highway. It opens up the clogged up streets so that we can enjoy our quality of life.

So if I had to say that there's an issue that we really have to see take place, it's the monorail in the city of Las Vegas.

Senator REID. Senator Voinovich, let me just ask one more question.

All you mayors should look at Oscar, because the Clark County School District, which is now the fifth largest in the country, has to build one school a month to keep up with the growth.

Mr. GOODMAN. With all due respect, Senator, I thought that, too, but it's now 14 schools a year. It's just incredible. We build a home every 15 minutes. That's how fast it's growing.

Senator REID. We dedicated 18 new schools a few years ago. We hold the record. The Superintendent of Instruction of Clark County, Las Vegas School District is really not a Superintendent of Instruction. He's Superintendent of Construction. That's all he does.

Senator Voinovich.

Senator VOINOVICH. I just wanted to ask this one question before I know you have to go to the floor.

I have had one formal hearing in Ohio that was conducted by Senator Crapo on the issue of sewage treatment and water infrastructure needs, and then I had a couple of meetings with local government officials. One of the things that came up—and I'd be interested in your response to this, particularly from some of the organizations that you represent, maybe the U.S. Conference of Mayors and the National League of Cities—that's been brought up constantly with me is that many of the new environmental regulations in terms of storm sewer overflow are driving up costs astronomically. They feel that some of those regulations ought to be revisited because they defy common sense. One example was the Mayor in Mansfield, OH who has a holding tank. When you have a flood, the water is sent over to the holding tank. They treat it and then return it to the stream. They return it at a higher quality than the stream quality. But she's now been told that she's got to put in a whole new setup that's going to increase her costs to her people from $30 a month to $100 a month just to take care of the treatment of this water in this holding tank.

I would just like to have your comment in terms of some of these regulations. I know Atlanta's got a problem. You've got a conformity problem in terms of the new regs. In terms of the new ozone and particulate, Mayor Goodman, you mentioned that. The new regs if they come into effect next year, almost every urban

area in the United States of America is going to go into noncompliance, and many of them are not in compliance with the current ozone and particulate standards.

Could you respond to that?

Mr. MORIAL. Let me just say this, what you're talking about Senator, is unfunded mandates, and those are regulations that force us to spend money. I think we would certainly be open to looking to see if there are better ways to achieve the goal, but I don't think that we would want to step back from anything that would sacrifice the quality of water or sacrifice long-term effects on the environment, because we've learned in many other areas that sometimes short-term gain means long-term pain.

But having said that, I certainly think that looking at better ways to do things, where sometimes the regulations are written by well-meaning people who have very little practical experience at the local level. Some of those regulations that you refer to, or some of those systems that you refer to may have been put together with the best of intentions, but may be overburdensome with respect to cities.

Mr. CAMPBELL. Senator, you indicated that we are also under a Federal consent decree. One of the problems is that we don't have the sort of consistency in terms of telling us exactly what will work and how much it will cost, and then being in partnership to get there. A perfect example is this consent decree we're under right now with this SSO and the CSO Programs, which as I indicated in our testimony, it will cost us about $3.2 billion over the next 13 years to upgrade the system. That, in and of itself, is an astounding amount, but what we also see is that the approval for the CSO, as an example, we're now being told that perhaps the CSOs, which we were told in agreement that that would solve the problem, now may not be adequate to solve the problem. We may have to invest even more than what was originally agreed upon to get the job done.

So not stepping back from what we all agree are needed environmental regulations to improve the air and the water quality, but I think it's a bit disingenuous to say, we in partnership agree this is a solution that will work. We spend almost $1 billion to put the plants in place with the combined sewer overflows to make it work in this partnership, and then we're told, well, that doesn't work after all, or at least we're not certain it works after all.

These costs are going to fall on a very limited number of constituents. When I tell you that virtually 25 percent of the families in Atlanta make under $15,000 a year, and that our median income is about $36,000 a year, where will be get the money to pay for it? When you say $30 to $100, I must tell you, Senator, that's very conservative in terms of some of the cost increases that we're going to see. It's not just in Atlanta. It will be in Cleveland. It will be in Las Vegas. It will be in New Orleans.

What we're seeing is, if in fact these mandates are necessary to improve the water quality or to keep the manhole covers from exploding, as you mentioned, Senator Reid, then let's have a partnership that recognizes that we all have an investment. If we're going to pay for this, let's have a consistent solution. Let's be in partnership about how we're going to pay for it, because the cities simply

will not be able to fund it without bankrupting many of the people that we serve. If that happens, then this economic growth that's really sort of spurred our economy, although we now see some of the flatness in our economy now, we're going to continue to have problems with sustaining the growth in the future.

Senator REID. You know, I say to my two colleagues here, the burden for the high cost of infrastructure that we need to spend is in urban areas, not in the suburbs where we have people that are better off, but in the urban areas where people traditionally haven't the money that they have in the suburbs. But that's where we must focus our infrastructure needs is in the cities. I would like each of you to make sure that you're very specific—if you don't have it now, make sure you send it to us—what really you need in your cities, specifically. I want to hear, Mayor Williams, about Washington, DC—why you need to replace your water pipes, because they're old; and New Orleans, the pumps, I only know a little about them, 100 years old, I would think they can't go on forever—and the same with Atlanta.

Mr. CAMPBELL. The lifespan for most of the pumps and the pipes are about 50 years in terms of an adequate life cycle, Senator. So we have been living on borrowed time for about 50 years in some of our cases. We have 100-year-old water pipes and those pipes are breaking down incrementally. What you end up doing, because you cannot get any consensus about how to pay for it, is you patch it. Everybody will tell you that patching simply is only buying time. What most of us hope for as elected officials, especially those of us with term limits, is we just hope that it won't break down massively on our watch, and then we'll be able to say we did the best we could, and you'll pass it on. As it's passed on and passed on, eventually it will cost massive amounts of money, as we are now having to spend in Atlanta and virtually every other city in America.

Mr. MORIAL. I wanted to make one other observation about the suburbs, because the suburbs' problems aren't where our problems are today because the systems in the suburbs are just frankly newer.

Senator REID. That's my whole point.

Mr. MORIAL. But the suburbs are just behind us. In other words, these suburban communities which grew up in the 1950's and 1960's will soon have 60- and 70-year-old water systems, drainage systems, road systems. So we're dealing with the fact that all of this underground technology is basically 100 years old, because it is in the late 1800's and the early 1900's when our engineers and technology gave us the ability to have clean drinking water, gave us the ability to have underground wastewater systems and get away from cisterns and things like that.

So the suburbs are just behind us. I say that to suggest that this is going to have to be a national priority for the 21st century.

Senator REID. Senator Inhofe, what I have told Senator Voinovich before you came here, with the transportation bill we need something to vote on today, so I'm going to go offer an amendment now. Senator Voinovich was kind enough to say he would take care of the meeting, and that you are the ranking member of this subcommittee, and Senator Voinovich certainly wouldn't care,

I would ask you to conduct this hearing, and I'll try to return if I have that chance. What would be my suggestion is, I think we're at a point now where rather than keep these mayors waiting, let's finish the questioning to the mayors and then bring on Mr. Portiss and Mr. Guerrero, and complete it that way. So any further questions to the mayors, you would handle that for me, I'd appreciate it.

Oscar, could we hear from you before I leave?

Mr. GOODMAN. I was just going to say this, Senator, basically what we're talking about as mayors is to preserve the quality of life for our constituents. I mean, that's the broad issue. When you talk about things like patching up—patching up disrupts. You really have to solve the problems and solve them quickly. This constant disruption to people's lives, like in Nevada and Las Vegas in particular, where we're always working on the roads, trying to make bigger roads and make roads wider, make roads more safe—it gets to a point where people just aren't enjoying themselves in living in a community. I think that we really have to look at it in that respect.

Senator REID. Let me just say also to my colleagues here, I am really very interested in infrastructure in our cities and our States, and this is the first of a series of hearings that I'm going to hold on infrastructure. I would appreciate it, as your staff's already been advised, any ideas you might have on how we can get to the bottom of this. The first thing I'm going to do is make sure that we, through testimony given to this subcommittee, we have an idea of what the needs are around the country. Once we decide that, then we'll have to figure out something to do about it.

But this isn't going to be a one shot deal. We're not going to hold this hearing and go on to another subject. I'm going to spend on this subcommittee as much time as I can on this. Especially we need to do it this Congress, because next Congress we're going to be faced with a highway bill. So I ask you and others to join with me. Also because of some of my other responsibilities, I'm going to be holding a number of these hearings on Mondays. So I know it's inconvenient for a lot of people, but it's one of the times that I have.

So having said that, Senator Inhofe, I turn the hearing over to you.

OPENING STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Senator INHOFE [assuming the chair]. Thank you, Mr. Chairman.

Let me just make a couple of comments. First, before we continue with the questioning of the mayors, first I want to say to Mayor Morial, both of us, Senator Voinovich and I, were mayors of major cities and served with your father. In fact, he and I were on the U.S. Conference of Mayors and we worked very well together and we became very close friends.

Mr. MORIAL. Thank you. Thank you, Senator.

Senator INHOFE. I know you're carrying on his tradition.

Mr. MORIAL. Thank you.

Senator INHOFE. As I understand it, we have not heard yet an opening statement from Mr. Portiss. Is that right? Well Bob, if you

don't mind, we'll go ahead and finish the way the chairman had suggested. As most of you know, we went through a majority change. I was the chairman of this committee, as was Senator Voinovich right before me. We actually are operating with two former chairmen and a current one.

Let me just say, as a conservative I've always felt we should have a limited role of what government gets involved in. But I've been very specific to say that there are two areas—national defense and infrastructure—that specifically these are government roles that we need to concentrate on and concentrate our resources on. I feel very strongly about that.

As a former mayor, I know some of the problems that you have—unfunded mandates and all these things that are supposed to be doing such a great job. Currently, Senator Voinovich is the ranking member on the Clean Air Subcommittee. I used to chair that committee. We know the necessity of streamlining and I'd like to have all of you address that a little bit, because in TEA–21, we talked about streamlining, about doing something where we could quickly get through some of these environmental demands that are on us. It might be a good idea to hear if any of you have ideas on how we could implement this. While we did address it in TEA–21, we did not actually put down specifically how this is going to be done. Any thoughts that you have?

Mr. CAMPBELL. Well, Senator, I serve as the chairman of the Transportation and Telecommunications Committee of the U.S. Conference of Mayors, and testified a great deal on the TEA–21 passage, as well as some of the particulars.

Quite honestly, Senator, as I'm sure you can imagine, there's a huge chasm between good intentions and reality. The streamlining simply has not occurred. In fact, we in cities have had really to fight to make certain that our voices are heard in terms of how these moneys are spent in TEA–21.

There is a concomitant issue which is that in some of the States, the moneys that were intended in essence to be a part of a partnership between the Federal Government and local communities have been absorbed by State governments to be utilized for State projects, and in essence the money is simply being transferred that comes in from TEA–21 and the States simply take the posture that they no longer have to find the moneys to fund some of those projects.

What that means is that there is no real streamlining that's occurred. We're having tremendous difficulties in getting some of the moneys, and we're also not having our voices heard, even though, as you may remember, Senators, that there was a good deal of byplay between whether or not the State Departments of Transportation in essence would be the final arbiters on where the moneys were spent, or whether we would have the kind of local input which we think is important. Both you and Senator Voinovich would appreciate, having come out of municipalities, that it's our voices that should be heard, because it is local communities that are really feeling the brunt of these decisions about where transportation moneys are to be spent.

This issue really needs to be resolved, and one of the things that we were told when TEA–21 was passed was that there would be

some further clarifying amendments that would somehow speak to this issue of more local control, some of the issues with regard to streamlining, how the moneys were going to be allocated, or whether or not we were going to be able to get these moneys and put these moneys to use very quickly. In Atlanta, that is one of the areas where we've not seen the kind of partnership that we really would have hoped for. It doesn't mean that things aren't going well. It simply means that if we are truly to get the money spent quickly, resolving some of these issues with regard to infrastructure needs, particularly roads and surface transportation as is contemplated under TEA–21, we would look for some further clarifying amendments, because, to just be very blunt, Senator, it hasn't happened. In order for us to be responsive, we need your help because we're not getting the job done because the moneys aren't flowing as quickly as we would like.

Senator INHOFE. That's the reason I brought it up, because it isn't being done. You're right.

How about you, Mayor Goodman? Do you have any comments about this?

Mr. GOODMAN. Basically, the only comment I would make is we have the strongest compliance laws in the world in Nevada as far as clean air is concerned, but we don't have the folks to enforce them. That's been a big problem in Las Vegas. We're having a battle right now as to who's going to be in charge of our air quality, and we're going to be meeting with the Governor this coming Monday, a week from today. Hopefully, the city of Las Vegas will have some say in that.

But basically, it's a question of money. We went up to our State legislature and we tried to get money in order to have an independent Air Quality Board. They turned us down. We wanted to increase the smog test fee, and they wouldn't go for it. The Governor said he wasn't going to allow an independent agency to take place that wasn't funded. So it all comes down to money, as so much of our problems do.

Senator INHOFE. Would the new standards for ozone and PM put Las Vegas out of attainment?

Mr. GOODMAN. Yes. Right now, we believe we're barely within attainment as far as the carbon monoxide. On the PM_{10}, we're hoping that we're able to get that under control. We have so much construction taking place there, it's very, very difficult. We put in some very tough laws as far as construction and contractors' watering and taking care of the earth around the projects. But we don't have anybody to go out there and make sure that they're complying with the law. That's a big problem.

As far as ozone is concerned, we really, in all due respect, haven't begun to really address that issue. That's something that's out there.

Senator INHOFE. Are any of the rest of you—would you find yourselves in nonattainment as a result of these standards?

Mr. WILLIAMS. We clearly have a problem down the road in nonattainment, Senator, in this region. I would agree with Mayor Campbell and everything he said about unfunded mandates, on the need to work with the Feds in making streamlining really work. But I will say that in this area, one strategy we have for address-

ing this problem is in our Metro. Our Metro is just about ready to burst at the seams and really needs some investment. We have the highest ridership in Metro, I think after New York City, in this region. I think investment in Metro is money well spent for a number of different reasons, not to mention attaining these standards.

Mr. MORIAL. I would just add that one thing that might be tried is to deliver more of the resources to the local level. I think what you find with the whole setup, which is designed to transfer money from the Feds to State Departments of Transportation, they in turn are responsible for projects in local levels or they work through metropolitan planning organizations, is that there are so many steps along the way—so many rules, so many regulations, so many meetings, so many hearings—that the money doesn't get spent.

One of the problems that I've seen in Louisiana is that the simple inflation in construction costs takes projects which may have been envisioned in 1997 dollars, but construction may not begin until 2001, and no longer the State can afford it because the matches increase.

So I would urge really a serious look at the system in terms of the way it works, such that maybe something experimental could be tried, and that is delivering some resources directly to the local level for certain types of projects.

Senator INHOFE. What I'd like to do for the record, not to take up time now, is have each one of you submit your ideas on streamlining, and also this whole idea that you could be losing some real valuable highway dollars, Mayor Goodman, and that's very significant. If Senator Voinovich would forgive me, can I tell them my story you've already heard once before?

Senator VOINOVICH. Go right ahead.

Senator INHOFE. I was elected first to the State House of Representatives in 1966, and my first trip to Washington was to testify before this very committee here, protesting Lady Bird's Highway Beautification Act of 1965, saying, "You can't withhold our dollars." Here I am ranking member on the very committee I testified before back in 1967.

Well, only one last question, on the use of Darby bonds, have any of you been taking advantage of this? That's allowing your future revenues—OK, that's fine.

Do you have any more questions for the mayors?

Senator VOINOVICH. I have. Yes.

As I listened to you today, I've been in your position as a member of the executive committee of the Conference of Mayors and as president of the National League of Cities. The problems are still there.

Mr. CAMPBELL. The same problems, same bridges, same roads.

Senator VOINOVICH. I worked very, very hard with the Governors to get unfunded mandate relief legislation passed. I was very active in the safe drinking water changes that helped to loosen that regulation a little bit to make some common sense out of it.

I would suggest to you that we have a responsibility in the Federal level to get out hands around the real costs in the various areas where we have Federal responsibilities. I happen to agree with Senator Inhofe that we have priorities in national defense and infrastructure. I think Americans forget that we made the real

change in our sewage treatment facilities in this country with the 75/25 program that came in at the end of the 1960's, and it was discontinued in 1985. Then we went to the loan fund program.

So we need to get a handle on our numbers, but it seems to me that you all ought to get together through your respective organizations and work with your Governors in the Big Seven to come back with some recommendations on how you can tackle some of the problems that you have. I would suggest one of them is to really look at, as we did with the safe drinking water, are we asking you to do some things that don't make sense? You know, I think that's really something that's important, harmonizing our environmental needs along with practical needs that you have in your respective communities.

Then I think that some real consideration should be made concerning partnership. Just what is the proper division of the cost of these things? I know in my case, my water rates went up 300 percent while I was mayor. We had a thing called "Build Up Greater Cleveland," where the Urban Institute told us we had billions of dollars of infrastructure needs. So we sat down and spent the time to really get a handle on what those infrastructure needs were. Then we started to systematically go at them. It wasn't much fun. People weren't happy with it, but at least we knew what we were doing.

I'd be interested in your thoughts of this WIN proposal. You know, WIN has come back with $57 billion over a 5-year period. I don't know whether that's going to get the job done or not, but I want you to know about reality. OK? Reality is that last year, we tried to increase the amount of money for grants to States and cities for waste treatment infrastructure problems. It was called a Wet Weather Program. It was only $1.5 billion over a 2-year period. We can't get in this budget right now in the current Appropriations bill, there's no money in it at all for the Wet Weather Program. We've increased the money in the revolving loan fund to about what it was last year.

I've got a bill in now, S. 252, which would increase the loan program from about $1.5 billion to $3 billion a year for 5 years. That's just a loan program. But that's not enough in itself. You've got to have a grant program.

So we have an enormous problem. I would suggest to you that it's not going to be solved unless you get your respective organizations—the National League of Cities, U.S. Conference of Mayors, National Governors Association, National Council of State Legislatures—to come back to this Congress with a proposal that you're all going to be in lock-step over to see if we can't make some progress on this issue.

I just want to make one other point—we're talking about building schools. I happen to believe that building schools is a State and local responsibility. Now, I don't know what's happening in Nevada, but I know in Ohio, as Governor of our State, I began an infrastructure program. We're going to spend $23 billion over the next, I think, 10 years to replace the schools in our State. But it's a State responsibility. The Federal Government can't do it all. The same taxpayers that you have to go to are the same ones that we

have to go to. So there's a balance that needs to be struck here about what are our respective responsibilities.

I think if the cities came back to us with some kind of a proposal on this whole business of waste treatment and water and said, look, we feel that we can handle this, but we think that's your job, and it was a partnership, I honestly believe that we could make some progress in this area.

So I challenge you to take this on in your respective national organizations. Unless you get your national organizations involved in this, forget it. It's not going to happen.

Mr. MORIAL. We will do it. We appreciate the offer.

Mr. CAMPBELL. Thank you very much, Senators, for hearing from us. It makes a real difference to hear a sympathetic ear. As you pointed out, there was a 75/25 partnership for a number of years. We would love to have a 50/50 partnership that would help us to defray some of the enormous costs that we are absorbing.

Thank you very much, Senators.

Senator INHOFE. Thank you.

All right, we'll excuse our four mayors and ask Mr. Portiss to stay, and also ask Mr. Guerrero if he would come to the table.

While our mayors are leaving, I would only say that those of us who serve in the U.S. Senate, and also served previously as mayors of major cities, we know what tough jobs the mayors have. I sometimes tell, Bob, when I hear my friends complaining about something here in the Senate, I say you ought to try being mayor of a major city sometime. If you don't like the trash system, it ends up in your front yard.

Let me welcome the second panel. Bob, I hope you will forgive me. There were some mechanical problems in Chicago, and the plane was 1½ hours late. I wanted to be here in advance of you.

The way I'd like to do it is to have you go ahead and give an opening statement. But before you do, I'd like to share with this panel that back in 1970 when I was in the State Senate, we noticed that the message wasn't getting through that we in Oklahoma were navigable. A guy named Albert Kelly came to me with this great idea. He was a World War II submarine veteran. He said, Inhofe, what you're going to have to do to show people that it's navigable is bring a submarine all the way up to Oklahoma. We decided we'd go ahead and do it. We went down and made a deal with the Navy to get the retired USS Batfish, about the size of a football field, as I recall, Bob, and we floated it all the way up the Mississippi into the Arkansas and across the line. I remember having to use flotation at some times, and having to sink it to get under bridges. But we got it all the way up there, and all my adversaries were saying, it's "Inhofe's Folly." You know, we're going to sink Inhofe with his submarine. But it didn't happen because it's still there right now as a State Park, completely self-supported. It told a lot of people in the world that we are indeed—I remember the pictures on the front of a big industrial magazine showing it crossing the Arkansas into Oklahoma. So our best-kept secret is hopefully getting heard, and we've made a lot of progress.

So why don't we start with you, Bob, and you tell us a little bit about your problems, your victories and your challenges.

STATEMENT OF ROBERT W. PORTISS, PORT DIRECTOR, TULSA PORT OF CATOOSA, TULSA, OK

Mr. PORTISS. Thank you, Mr. Chairman.

I was really pleased that I was able to wait and that you had me wait until you showed up.

It really is an honor to be here, and it was an honor to sit among such distinguished mayors as well from our principal cities in this country.

For the record, my name is Bob Portiss. I have held the position of port director for the Tulsa Port of Catoosa, a 2,500-acre inland international seaport located about 10 miles northeast of the city of Tulsa in Rogers County, OK, since 1984. My employment with our public port authority actually began in 1973. I have to give you a little history about the port because needless to say, most of you would not know anything about it, except for what Senator Inhofe has shared with you.

Oklahoma began offering barge transportation 3 years earlier, in December 1970 when the McClellan-Kerr Arkansas River Navigation System was completed. This system begins at the confluence of the White and the Mississippi Rivers located approximately 500 miles north of New Orleans on the Mississippi River, and extends 445 river miles through Arkansas and Oklahoma. Seventeen locks and dams permit barge freight to stair-step the 420-foot elevation change to reach our port at the head of navigation.

Authorized by the Rivers and Harbors Act of 1946, the McClellan-Kerr, which cost $1.2 billion to build, has resulted in over $3.2 billion of non-Federal public and private investment in Oklahoma and Arkansas, creating some 55,000 jobs. Freight handled on the system currently averages 12 million tons per year, carried in 8,000 barges. That's the equivalent of 120,000 railroad cars or 500,000 trucks, which if used instead would, of course, add significant congestion to our already constrained railroad and highway systems.

All of this was made possible by a joint venture offered to Arkansas and Oklahoma. The offer was simple. The Federal Government would build a waterway to Oklahoma if the five principal cities along the system would each build a public port providing access to barge transportation. Tulsa was one of those cities. Their commitment delivered what I believe is the largest fully developed inland port complex, believe it or not, in our country today—the Tulsa Port of Catoosa.

I know of no other inland port that has 2,500 acres of contiguous land area. This land and the initial infrastructure was paid principally for and through a $21.2 million general obligation bond issue of the citizens of the city of Tulsa in Rogers County. That seed money has since grown to over $45 million in public investment, and some $300 million in private investment generated by the 53 companies now located within the complex who currently employ 3,000 people. Obviously, the joint venture has worked well for our States and for the Nation, at least thus far.

The future success of the system will depend in great part on whether Congress will continue to provide, maintain and operate our Nation's waterway infrastructure. The current outlook admittedly is not favorable. Fortunately, the Congress has approved additional funding above the President's current budget for O&M.

But even so, the critical O&M backlog will still increase by more than $300 million in the next fiscal year.

Locks and dams—this is where the real hurt lies. Locks and dams along our Nation's waterways are aging and severely deteriorating, over 44 percent of them being at least 50 years old. Many are underutilized for modern commercial barge tows, which must then be broken up and reassembled at each lock. It is estimated that as a result, river traffic is delayed some 550,000 hours annually, representing an estimated $385 million in increased operating costs borne by shippers, carriers and ultimately consumers.

Sadly, the current trend is to keep studying the problem, rather than fixing it. As an example, the current study concerning the modernization of the Illinois and Upper Mississippi has been underway for 11 years at a cost of $54 million, and yet we are no closer to finalizing the study today than we were in 1990. Favorable congressional action is also required at our own level for Montgomery Point Lock and Dam, without which our navigable waterway may not exist anymore. Congress has allocated some $23 million for this current fiscal year for the project, way short of the $45 million that we've asked for. Delaying this project could literally shut down our waterway, as I mentioned, simply because of a lack of water.

Another item affecting our future is the need to increase the authorized depth of the McClellan-Kerr from 9 to 12 feet, enabling us to operate at peak capacity, being able to load barges more fully—approximately 100 trucks per barge, rather than the current 60 truckloads per barge would lower the cost of products, thereby enhancing our customers' ability to compete in world trade.

In conclusion, it is time for Congress to take responsibility for providing the funds necessary to rebuild, rehab, maintain and modernize our Nation's inland waterway navigation system. Our system has been the envy of the world for decades. Now the rest of the world is taking up the challenge, with the realization that water is the only way to remove significant amounts of freight from the highways.

Our congressional and State leaders must understand that maintaining a viable National inland waterway transportation system and protecting the environment are not mutually exclusive objectives. They can be accomplished by encouraging local and Federal agencies to work together as in past years, thereby continuing to provide jobs and enabling us to effectively compete in the international marketplace. The alternative of abandoning the system that has helped our Nation to be so strong and which has proven to be a good Federal investment is clearly not in our best interest.

Thank you.

Senator INHOFE. Thank you, Mr. Portiss.

I think the way we're going to conduct is go ahead and continue with you now, before getting to Mr. Guerrero, if that's all right.

I think it's really important—you had mentioned on this Montgomery Point Lock and Dam, which we've worked on together now for I guess a decade or longer than that—that it's not a matter of shutting it down. One of the big users up in Enid ships a lot of wheat—Lou Myberg—and was talking about how they make their contracts some years in advance. If there's any doubt as to the abil-

ity of the waterway to carry them, then they'll make another contract. In other words, we would contract ourselves out of the business of using the waterway. This is something that's very hard to sell here on the Hill.

Now, there's a lot of competition for dollars. You mentioned $24 million is not an adequate amount. What was the amount? Was it $50 million or $51 million?

Mr. PORTISS. Forty-five million dollars.

Senator INHOFE. It's what?

Mr. PORTISS. Forty-five million dollars is the actual amount requested in order to complete it as previously scheduled, and that was in 2003.

Senator INHOFE. How much can you do now with the $24 million if we were to be able—now, you know, we did get a little bit extra through the help of Senator Reid and Senator Domenici just after this amount had been established. But what is your estimate in terms of what this would set us back? When is the latest we can come up with the rest of it necessary to complete the Montgomery Point Lock and Dam project?

Mr. PORTISS. In talking to the district engineer from Little Rock, if they do not receive at least I believe $35 million, then their option will be to shut the project down until the next fiscal year. Because apparently the Corps does not have any extra money to transfer from some other project to Montgomery Point Lock and Dam in order to continue with construction.

Another option they've looked at is the possibility for the contractor to fund the balance of the money that might be needed for this year—let's say up to the $35 million that maybe they could squeeze by with, but that's not in the cards either.

So the outlook looks very dismal if we're not able to increase the amount above $24 million, and again that's just based on my conversation with——

Senator INHOFE. So you say they might have to shut down until they wait and see what happens next year, and if that comes up to the $45 million. What would happen during that shut- down? What costs would be incurred that would not otherwise be incurred?

Mr. PORTISS. I don't think there would be any immediate direct cost. The problem is how soon will the water level in the Mississippi drop that magical 15 feet that the senior hydrologists with the Corps have been predicting for some time, which was the impetus—the justification, if you will—for building Montgomery Point Lock and Dam. That could happen starting next year, for example, and then we would be in trouble because instead of having nine feet of navigable depth, we may be down to something quite a bit less. That would be—well, at that point, we just simply cannot economically load barges. You have to have your full 8.5 feet.

Senator INHOFE. Also, there could be a contractual problem, too, because people have contracted to have that capacity.

Mr. PORTISS. That's very true.

Senator INHOFE. So I just wonder if we might be incurring any exposure if that would happen.

You know, you mentioned something I think is very significant, and the mayors probably maybe they really didn't get into this. But

as to what you relieve—have there been any studies made on, let's say, how much did we carry, let's say, all the way into the port last year? What kind of figures are you looking at?

Mr. PORTISS. Two million tons by waterway, barges alone.

Senator INHOFE. OK. What would that have translated to if you'd used trucks?

Mr. PORTISS. Oh, I don't remember that off the top of my head.

Senator INHOFE. But it does serve to relieve congestion. That's my point. You know, I served 8 years on the Transportation Committee in the House, and then when we came over to the Senate in 1994, until this year I was not active on this committee, and now just coming back to it. The amount of congestion that's taken place in that interval from 1994 to now is just really unbelievable. That was the most shocking thing that I had learned during the time that—after coming back to the Transportation Committee. But I know that it would be something mathematic that can be worked out, but it's a message we need to get out—that it's not just rail; it's not just, you know, it affects rail and truck traffic, too.

Mr. PORTISS. Senator, we rely on, as you know, rail, truck and barge have to work together simply because barges can't go door to door. When you figure that there are 60 semi- trailer/trucks to every single barge full of grain, all of a sudden that illustrates the magnitude of what we're talking about in terms of just taking trucks off the road.

Senator INHOFE. Yes.

You mention in your testimony about the Upper Mississippi and Illinois Waterway, and you're very familiar with how inland waterway systems work.

Mr. PORTISS. Yes, sir.

Senator INHOFE. Why do you support the construction of new locks in the Upper Mississippi River? What effect does this have on us, down where we are?

Mr. PORTISS. We, as an example, the inland waterway system is our water transportation highway. We regularly ship cargo to and from such diverse locations as Minneapolis-St. Paul, Chicago, Pittsburgh. If the highway isn't there, then we're no longer in the inland waterway business. As has been—another factor I think to consider is it's totally absurd to think about shutting down the Mississippi or restoring it to its original condition as a river, as some have suggested. Sixty percent of our Nation's agricultural exports go down the Mississippi to the Gulf Coast. How are we going to handle it if we don't have an inland waterway system, if we don't have a viable Mississippi? So I don't think it's something that really needs to be studied. We just need to get on with the program.

Senator INHOFE. Bob, what year did you come with the Tulsa Port of Catoosa?

Mr. PORTISS. Yes, sir, in 1973.

Senator INHOFE. In 1973.

Senator Voinovich, he's been there a long time. I've known him since that time, too. My father-in-law was very instrumental in the development of that waterway.

Mr. PORTISS. Yes, sir. You've been a 100 percent solid supporter, Senator.

Senator INHOFE. Senator Voinovich, do you have any questions you'd like to ask Mr. Portiss?

Senator VOINOVICH. No, I do not.

Senator INHOFE. All right, Mr. Portiss, I appreciate very much your coming. I know the problem with the Montgomery Point Lock and Dam. I know the necessity of the 12-foot channel. Is there any other challenge out there you'd like to share with us so that we would be able to use this?

Mr. PORTISS. I think there's a couple. One of my colleagues from the back of the room—thank you, whoever it was, I think I know who it was—said 80,000 trucks is the equivalent of 2 million tons. Thank you very much, whoever did that.

I think a couple of other things I'd like to share with you, and really, my statement is considerably longer than what I read into the record, as you might well guess. But another area that really concerns those of us that are in the inland waterway business—probably two areas. One is the Endangered Species Act. If this Act is to be reauthorized, it simply must be done with needed reforms. The implementation of its provisions has thus far resulted in actually stopping projects permanently.

Senator INHOFE. Give us an example.

Mr. PORTISS. The Arkansas shiner, just recently Senator, was designated as having a critical habitat in western Oklahoma.

Senator INHOFE. Yesterday a lawsuit was filed by the Farm Bureau, I believe.

Mr. PORTISS. I saw that. Literally by declaring it a critical habitat, and as I understand it, U.S. Fish and Wildlife Service has complete control over as to what that land is going to be used for, without any compensation to ranchers or farmers in the western part of our State. I think the reason the lawsuit was filed, based on some hearings that I've attended and where I've listened to these people talk about it, I mean literally, it's just shutting down their farms, their ranches. That just can't be.

Senator INHOFE. Yes, we had testimony on another subcommittee of this committee that it cost the average farmer with run-off from one of those areas about $700 a year. So those things add up to our rapidly endangered—real endangered species, that's the Oklahoma farmer.

Mr. PORTISS. The only other thing I was going to add is you mentioned earlier about TEA–21 or NEXTEA. Any new bills like that, we really need to find a way to—the concept makes sense, and that is for multi-modal transportation links. But so far, at least at our facility, and my colleagues along the river in Arkansas and Oklahoma have found the same thing to be true, it's really difficult to access those funds, and I don't know why. It's just very difficult.

Senator INHOFE. All right. Anything else?

Mr. PORTISS. No, sir. I think that's it.

Senator INHOFE. OK, I appreciate it very much your being here, coming from Tulsa, and then also tolerating my tardiness.

Mr. PORTISS. Oh, no, no, no.

Senator INHOFE. I look forward to seeing you after the meeting.

Mr. PORTISS. Thank you, sir.

Senator INHOFE. Mr. Guerrero, if you have any opening statement, we'd like to hear it at this time.

STATEMENT OF PETER GUERRERO, DIRECTOR, PHYSICAL INFRASTRUCTURE, U.S. GENERAL ACCOUNTING OFFICE; ACCOMPANIED BY: PAUL POSNER, MANAGING DIRECTOR, FEDERAL BUDGET STRATEGIC ISSUES; AND KATE SIGGERUD, ASSISTANT DIRECTOR, PHYSICAL INFRASTRUCTURE ISSUES

Mr. GUERRERO. Thank you, Senator.

I'd like to submit our written statement for the record and just summarize my remarks.

Senator INHOFE. Without objection, that will be the case.

Mr. GUERRERO. With me is Paul Posner who is our Managing Director at GAO for Federal Budget Issues. We were asked, as you know, by Senator Voinovich to do this work, and I'll be talking about the work today.

As you've heard, a sound public infrastructure plays a vital role in encouraging a more productive and competitive national economy and in meeting public demands for safety, health and improved quality of life. As you heard from the mayors today, when problems occur with the performance of infrastructure, they can be very visible and their effects can be widespread.

I'm here today to discuss the Federal Government's role in ensuring a sound public infrastructure. My testimony will focus on the Federal Government's role in funding civilian infrastructure, and I will also discuss estimates for major areas of public infrastructure developed by seven Federal agencies.

With regard to the Federal Government's role, it's safe to say that it exerts a very important influence on infrastructure investment and development at all levels of government and the private sector. The Federal Government's influence can be seen in several ways—acquiring and maintaining federally-owned assets; providing funding for infrastructure that's owned and operated by others; and influencing the way that infrastructure projects are designed and built through legislation and regulations.

The Federal Government has spent an average of $59 billion a year since the late 1980's on the Nation's civilian infrastructure. As shown by Figure 1 in my written testimony, this spending showed a slightly upward trend through the 1990's. But the Federal Government, as we heard here today, isn't the only player in meeting the Nation's infrastructure needs. As shown in Figure 2 in my written statement, State and local governments also contribute significantly and there's been an upward trend beginning in the 1980's that in certain areas even exceeded Federal spending.

With regard to infrastructure estimates by the seven agencies we reviewed, each agency estimated billions of dollars will be required to build or repair the Nation's roads, wastewater treatment works, dams, airports, courthouses and the like. The estimates contained in Table 1 of my testimony range widely and cover various periods of time. For example, GSA estimated it would need $4.5 billion to repair public buildings over the next 5 years. At the other extreme, the Federal Highway Administration estimated up to $83.4 billion would be required in each of the next 20 years to improve the Nation's highways.

In between are 20-year estimates by EPA of nearly $300 billion to construct and upgrade drinking and wastewater systems; $11-$16 billion estimated by the Federal Transit Administration per

year for the next 20 years for mass transit; $38 billion for Army Corps projects already in progress; $35 billion for airports; and $8.5 billion for highways within the jurisdiction of the Appalachian Regional Commission.

Certain estimates, such as those prepared by the Army Corps and by GSA are for Federal spending alone. Other estimates, like those prepared by EPA for drinking water and by the Federal Transit Administration for mass transit, involve all levels of government and the private sector.

Let me now put these numbers in perspective. First, while these estimates encompass major areas of public infrastructure, they cannot easily be compared or simply added up to produce a national estimate of our needs. This is because they are developed using different methods and are for different time periods. A fundamental reason that estimates were prepared differently and lack comparability is that they are developed and used for different purposes. Some agencies, such as the Army Corps and GSA, for example, use those estimates to manage and repair their own assets, while other agencies such as EPA and FTA develop estimates to identify national needs and help you fund those needs.

Second, the seven agencies develop their estimates using some, but not all of the capital budgeting practices used by leading private sector and government organizations. Those practices include establishing a baseline inventory of assets, using cost-benefit analysis to identify economically-justified investments, and ranking and selecting projects for funding based on established criteria. Some agencies followed more leading practices than others. For example, the Army Corps had procedures that reflected six of the eight leading practices.

Nonetheless, following these leading practices does not always ensure a quality estimate, and each estimate has limitations associated with using data of known poor quality.

Third, some investment estimates span several decades and investment needs can change significantly over time with changes in technology, the efficiency of delivering infrastructure services or the employment of strategies that alter the demand for infrastructure. For example, energy efficiency standards can affect how many power plants we build. Year-round scheduling of public schools and universities can affect how many schools we need to build. User fees and tolls on roads can influence the congestion on highways.

Finally, these estimates mostly focus on the condition of infrastructure, rather than the desired outcomes—for example, less traffic congestion as a desired outcome. We caution against relying on estimates of need that are based primarily on the condition of existing infrastructure if desired outcomes are not clearly articulated and the cost and benefits of alternatives for achieving those outcomes are not fully considered.

This concludes my statement. I'll be happy to answer any questions you may have.

Senator INHOFE. Thank you, Mr. Guerrero.

I'll go ahead and turn this over to Senator Voinovich. He is the one who made the request.

Senator Voinovich.

Senator VOINOVICH. Thank you, Mr. Chairman.

I haven't read the report. I got it on Friday and I am going to read it, and so I'll be following up with some specific questions. But you took the information that each of the agencies had in terms of their estimates. You just said, I think, that in some instances you wouldn't rely on these estimates because they leave something to be desired.

How do we get to a point where we can get a real handle on what these costs actually are? Or is it many agencies are afraid to really confront the costs that they have? Or in the alternative, they figure even if they do, it doesn't make any difference because the money won't be forthcoming.

Mr. GUERRERO. Let me correct a misimpression if I gave that. I didn't intend to suggest these numbers were not reliable. They are not comparable. In other words, the Congress—if you were to ask us—if you were to look at these numbers and say, what is the national estimate of need here for infrastructure, you would be hard-pressed to come up with a national need because the numbers cannot be easily compared. They're prepared using different assumptions, different methods, they're for different time periods, and so forth. Some of them use cost-benefit analysis to compare different projects, and only those that are considered economically justified——

Senator VOINOVICH. But what I'm saying is that could you come up with a set of criteria that would say to agencies, these are the criteria that we want you to use over a period of time, and here are accepted practices in terms of how you go about estimating costs so that we could get to the numbers—maybe not tomorrow, but somewhere down the road.

Mr. GUERRERO. Yes, I believe that's possible. If I could turn that over to Paul Posner, who could probably elaborate further on that.

Mr. POSNER. Yes, we've given that a little thought. OMB—this does require some more central leadership, I think, to really address what you're saying. Analytically, the criteria are fairly apparent and we laid it out in the report. We have eight what we call best practices that have partly been gleaned, by the way, from an earlier work we did looking at best practices in capital planning in 12 corporations and States.

OMB for several years following up on that has developed a capital programming guide requiring Federal agencies for the first time to develop capital plans. It's hard to believe agencies have not done that before because, unlike State and local governments in the private sector, they don't have to go to the market to raise money or go to the voters. They've been able to essentially get by without it.

One possibility might be to add on, in other words, some kind of guidance on how to do this, because clearly determining needs is the first step in that capital programming guide. Every year agencies are required to go through a deliberative process to do that. Theoretically, OMB could work with the agencies to incorporate some more consistent criteria in that guide, and then that would provide probably some more uniformity in how the agencies go about doing this thing.

Senator VOINOVICH. In terms of when you're putting it together, you were just looking at the Federal side. You heard these wit-

nesses earlier—we have infrastructure costs. I think the EPA—-what was it?—$300 billion in 20 years to deal with the infrastructure cost for water and sewers during that period. There's been more recent from the WIN organization that it's even more than that.

Now, the numbers that you came up with—that's the total number, not just the Federal share.

Mr. GUERRERO. That's correct. For most of the agencies, it's the investment required at all levels of government. There are some exceptions, obviously. The numbers we present in our report for GSA and the Army Corps would be just for those agencies managing Federal properties.

Senator INHOFE. What percentage of that would be Federal?

Mr. GUERRERO. What percentage of, for example, the wastewater? I believe historically it's about 25/75 percent is the rough approximation. Seventy-five percent would be the investment made by the State and local governments and 25 percent by the Federal Government. That has changed historically. Around 1970 when we put a lot more money into upgrading sewage treatment to a secondary level of treatment, the Federal Government's role in that and the amount that the Federal Government provided was probably proportionally higher. But today, it's about 75/25.

Senator VOINOVICH. You heard me ask the questions of the mayors to come back with, looking at the environmental regulations and the guidance and so forth that have come out. Has GAO ever looked at that issue in terms of what additional costs will be incurred as a result of some of these new regulations? The reason I bring it up is when we did the unfunded mandates legislation—it started in Ohio. We really went out of the way to identify specifically what these unfunded mandates were. What's really amazing to me is that no one had ever done it before. Then we shared it with others States and they started going through the exercise.

Have you done that at all, do you know, in terms of GAO looking at, say, environmental costs of the new regs dealing with CSOs or stormwater overflow?

Mr. GUERRERO. Yes, we've done work in different areas. Specifically, very recently we did work on the—not the combined storm overflows, but the requirement for stormwater permitting, which has been highlighted also as an unfunded mandate. We can provide you with information on some of those programs to the extent we've done work on them. We'd be happy to give you specific information. To the extent, we haven't looked at the additional costs associated with some of those requirements, we could look at that for you.

Senator VOINOVICH. Because I know with the safe drinking water, when you got into that here in Congress that the regs in some instances, most of the water systems were under 10,000, and they were requiring the most highly sophisticated equipment to do it, and it would have bankrupted most of the jurisdictions that were being asked to do the work.

Mr. GUERRERO. Yes, in the drinking water area, for many years we studied that particular problem. There's a real difficulty that smaller systems have complying with the standards. They don't have, as you heard from the mayors in the earlier panel, they don't

have always the tax rate base to spread those costs that a larger jurisdiction can absorb those costs more easily. When Congress reauthorized the Safe Drinking Water Act several years back, it tried to address that in terms of how those standards were set. The extent to which that's been successful or not I think is something worth looking at.

Senator VOINOVICH. You indicated that following a leading practice does not ensure quality investment estimates. What do you mean by that?

Mr. GUERRERO. Well, for example, if you use cost-benefit analysis to assess whether a project is economically justified, but the data are not good or the assumptions are faulty, you might come up with a result that is not all that useful. So it's how you apply those best practices is critical. The key area that all of the agencies suffer from, no matter how good a job they try to do here, is the data they have to work with have limitations. EPA, for example, in estimating the costs of wastewater treatment and drinking water treatment only get data that goes basically 5 years out. Congress is asking it for a 20-year estimate of needs. So the agency has to take a guess at what that would look like, and to a large extent, really doesn't provide a full 20-year estimate because it doesn't have that data. That's why you have the discrepancies between the WIN report and EPA, where WIN is saying, oh no, it's much higher, because EPA hasn't extrapolated these costs into the future. They've only taken the first 5, 6 or 7 years, whatever they were able to get. EPA acknowledges those limitations, and every agency suffers from some of those same kinds of data limitations.

Senator VOINOVICH. Do you think that someone objective like GAO would look at, say, the WIN numbers and the other numbers and be able to come back and tell us whether you think they're reasonable?

Mr. GUERRERO. Well, I know that CBO did that analysis. I have a staff person here. What would we add to the CBO analysis? Do you have any sense of that?

Ms. SIGGERUD. No, I don't.

Mr. GUERRERO. CBO did look at the WIN numbers and tried to reconcile why there were those kinds of differences. My impression was they encountered some difficulty with that.

Ms. SIGGERUD. Yes, the difficulties that they encountered—well let me first of all add a few other things to the differences that we noted between the WIN estimate and the EPA estimate.

Mr. GUERRERO. Let me introduce Kate Siggerud from the General Accounting Office.

Senator VOINOVICH. I didn't hear your name, Kate.

Ms. SIGGERUD. Kate Siggerud.

In addition to what Peter mentioned about the timeframe differences between these estimates—the 20 years. Usually the communities that reported to EPA in their survey usually only reported about 3 to 5 years worth of plans. The WIN estimate also includes some maintenance costs that are not generally included in EPA's estimates, as well as some financing costs that aren't included in EPA's estimates.

Essentially, EPA's goal in doing its clean water and its safe drinking water survey is to look at what are the costs of imple-

menting the Safe Drinking Water Act and the Clean Water Act. Another objective is to determine what would be required in terms of EPA funding to those communities. Of course, the funding under the statute only covers certain items. For example, it doesn't cover maintenance and it doesn't cover drinking water or wastewater facilities for new communities. Therefore, the EPA estimate is much different in scope than the WIN estimate. That really goes to explaining the difference in numbers there.

We'd certainly be glad to provide some additional detail comparing the two, and also summarizing what CBO found in terms of their comparison.

Mr. GUERRERO. I think the bottom line probably is it's safe to say that EPA's estimates of needs are much lower than what's actually needed. Now, how much lower is open to question, and I'm not sure we—I believe the CBO could not, and I'm not sure we could do any better job of telling you precisely how to bridge that difference between those two estimates. But I think it's fair to say the EPA's estimates are low, and probably in the wastewater area alone, EPA estimates they're probably underestimated by some $80 billion, and that's no small sum of money.

Senator VOINOVICH. Let me interrupt for just a moment.

Mr. Portiss, we'd be glad to excuse you, and I hope we have a chance to visit maybe back in my office in a little while, but our business with you has——

Mr. PORTISS. That would be great. Thank you.

Senator VOINOVICH. All right. Great. Thank you, Mr. Portiss.

Senator INHOFE. Thank you.

Senator VOINOVICH. Well, Mr. Chairman, based on what I've just heard, doesn't it make it so much more important than when agencies are doing regulations, that they really look at cost-benefit in terms of those regulations? In other words, they've passed the regs. They've come up with estimates of what the costs are, but when you go back and review them, you find out that they've really lowballed it in terms of really capturing the real costs that are incurred by whoever it is that are going to have to comply with them. We have the unfunded mandates. I think it's over $100 million that they have to come back. I think for local communities, it's $50 million.

But wouldn't you agree that that ought to be given a higher priority than perhaps it's being given right now by Congress?

Mr. GUERRERO. I think what happens with—first, cost-benefit analysis is probably done in almost every case where those requirements are imposed because it's been a longstanding practice and requirement under Executive orders going back to I think the Carter Administration, but it maybe even predates that. Those Executive orders have been refined and refined over time, and every President has required EPA to do cost-benefit analysis of its regulations. But those analyses are done, as you can appreciate, looking prospectively before anything is actually implemented. So it's a best guess at a point in time.

It is useful to look back. We issued a report a year or so ago about the importance of looking retrospectively at how well these estimates are done and whether some of them need to be adjusted, and if so, what we can learn from making those adjustments and

what the implications are in terms of where the rubber hits the road with the mayors and localities across the country.

I would say that EPA does as good a job as it can do, doing prospective cost-benefit analysis. What it doesn't do is stop, look back, and do the retrospective to see, was it right? Was it even in the ballpark? What did it overestimate? What did it underestimate? What does that imply in terms of do we need to revisit what we're asking people to do?

Mr. POSNER. If I could just interject one other point. I think one of the most important criteria we have here for judging an agency's estimating practices is whether they put a cost-benefit screen on the proposed Federal project as well. Because as we talked about, funding is limited at both levels. The State and locals are concerned about mandates without money. We have encroaching entitlements and other things that are gradually shrinking the discretionary spending we have to allocate to this pool where we have tremendous needs. Obviously, effective cost-benefit analysis—I think of the ACIR report that was done in 1993 that talked about high performance public works, which is kind of a nice way to think about it. We could think of ways to strengthen those claims, given the greater pressures we have at the Federal level.

I just wanted to bring one thing up to your attention. We at GAO have suggested—and now this year for budget process reform is an important year because those discretionary caps are expiring—establishing for purposes of this kind of thing an investment component inside the discretionary caps. In other words, not a traditional capital budget where you go out and borrow like the States do, but given our overall unified budget framework and the need to continue to cap spending, that you might have a separate component devoted to what we call investment kinds of programs—infrastructure, human capital, R&D—which most economists potentially suggest can improve productivity just as well as surpluses can. The Congress over the year makes two decisions. One is, what's the total size of the surplus, and at least another decision is some explicit consideration be given to how much do we invest in promising programs for the future where, again, these estimates of needs could come back into the process in a more systematic way. So that's just saying needs are limited at both levels and there's a process that we might think about, to think about our scarce resources as well.

Senator VOINOVICH. That would certainly deal with one of the questions I asked about school construction. That's an enormous undertaking by the Federal Government. Once you get into that, that could just continue to go. But the fact is that you don't get into this issue of weighing that versus something else unless you know what that something else is. I think that's the point you're making, is there are certain fundamental costs that we have that we should identify and say these are things that we really need to get at. They're really not discretionary. They are fundamental things that need to be done by the Federal Government if we're going to have the infrastructure to have a viable economy and at least clean water. So I think that's a terrific suggestion that you make. You're just saying is, you've got the surplus. You can do this with it. You

can do that. But these are costs that you just can't get away from if you're being realistic and practical about things.

Mr. POSNER. Right now, those decisions, as you indicate, are made in a number of appropriations subcommittees and a number of other forums, but they're never brought together for the Congress to consider as a whole and rank against each other.

Senator VOINOVICH. Yes, and the same thing, Mr. Chairman, in the WRDA bill—$39 billion, and you've looked those numbers over. They seem pretty reasonable that they came up. I think the way standard is that it's $39 billion worth of these projects which have either received some design or some construction money. We continue to pass WRDA bill after WRDA bill after WRDA bill, and don't provide the money. I think this year, $1.5 billion or something like that to implement WRDA.

Would you say those numbers were good?

Mr. GUERRERO. The $39 billion? We had reported $38 billion, so it's there. It's in the ballpark certainly. The Army Corps reported appropriations for those projects last year was $8 billion.

Senator VOINOVICH. Eight billion dollars was appropriated last year?

Mr. GUERRERO. Eight billion dollars for water resource and hydro—not just what we heard from Mr. Portiss today, the inland waterways, but also some of the other areas under the Army Corps jurisdiction, including dams and hydro and so forth.

Senator VOINOVICH. I'd like to look at that.

Mr. Chairman?

Senator INHOFE. No, I was listening and it occurred to me that in our MILCON in Defense in the Armed Services Committee, it seems to me we have a very rigid set of criteria that's used that seems to work pretty well. I know you folks are not directly involved in that, but have you, Mr. Posner, have you ever looked to see if that's something that could be emulated or maybe it should not be.

Mr. POSNER. Not specifically. I do know one thing that Defense does in their budgeting for capital that's very important is they have a tradition of budgeting up front for all of the costs of a segment or a total project, which the Corps of Engineers does not do. They do what's called incremental funding. We, OMB and a number of other observers, including the President's Commission on Capital Budget of several years ago, argued that really when we go about funding these things, however good your needs assessments are, you ought to be prompted to pay for the costs up front, because that's the only time you really get to look at it. That's when you lock in the Federal Government's decisions. By and large, DOD in the budget process has observed that up front funding principle, perhaps more than any other agency in government.

Senator INHOFE. That's interesting. Why is it that the Corps has followed this incremental approach?

Mr. POSNER. I'm not exactly sure of the history. Typically, when we look at their budget documents, and we just did a report, we'd be glad to make available to you, for the Senate Budget Committee for Senator Domenici several months ago, where you look at their projects. Typically, you're funding maybe just a portion of the costs of completing a facility every year. That way, potentially, you could

fund more projects in a given year, but over time you're subject to cost overruns and a lot of other problems because of that approach.

DOD has always maintained for their own discipline internally and to support their planning programming budgeting system, that up front funding is an important discipline for them.

Mr. GUERRERO. So your point is well taken. Different agencies employ different best practices. In this particular case, a best practice that DOD as a whole may employ, but not the Army Corps, is the notion of up front budgeting as opposed to incrementally funding, which puts the project at risk, of course, to overruns and so forth. You know, we have a table in here where we identify of the seven agencies we looked at, how well each of them are adhering to these best practices. It's a real mixed bag, so there's room for improvement by the agencies in terms of how they do their capital planning. That would also improve the estimates of numbers that are reported to you.

Senator VOINOVICH. We had a capital budget when I was mayor and we had a capital budget when I was Governor, and some people have proposed that maybe the Federal Government ought to look at a capital budget. But I think that suggestion you just made a couple of minutes ago maybe is the beginning of that kind of approach. But does anybody ever sit down at OMB and look at the big picture, and start to look at priorities for the country and then kind of go back and start to allocate resources and make those hard decisions that one has to make in terms of doing a budget?

We have this, in my opinion, ridiculous 13 appropriation bills that I think is going to end up causing us a train wreck at the end of this year, like it has the last couple of years. But does anybody from your observation ever look at the big picture and try to have national priorities and balance things up and do that? Or is it everybody just focus on their own little area and then hope it all works out?

Mr. POSNER. Boy, I would guess that their answer would be that's the President's job, and in some sense it does get done. As you know as a mayor and a Governor, that's the job that ultimately falls to the chief executive.

We have looked at this question. I mean, generally OMB has to put the pieces together somehow. What we have is a new tool that I think can help in this regard. It's under the Government Performance and Results Act. Every year, OMB has got to prepare a government-wide performance plan that not only talks about how much money is going to each agency, but ultimately how much money is going to each outcome across agencies. So if we're talking job training or if we're talking economic development, the idea is in one document you want to force tradeoffs across agencies, programs, even tools of government. A tax expenditure for low-income housing, for example, should be traded off against the HUD Section 8 program and against other kinds of loans and loan guarantees so that you can have a decisionmaking process that's truly comprehensive. I think that's what you're getting at.

OMB has produced that report every year. It's published in the President's budget. But it's not a driving document. It's an after-the-fact compilation of decisions they make in the more traditional route. We have suggested, in fact, that more of a government per-

formance results perspective, using outcomes as your decision units, could make for a more comprehensive decision process. But so far, they haven't taken us up on our challenge with regard to that.

Senator INHOFE. You know, Senator Voinovich, when I was elected in 1986 to the House, I came up here and I realized having gone through the same thing that Senator Voinovich mentioned when he was mayor and Governor, that we had very rigid and separate operating and capital budgets. We knew exactly where we were at all times. We depreciated our stock. We followed the guidelines that the Federal Government imposes on everyone in America except for themselves.

A guy who was at that time serving from New York in the House of Representatives, who was a CPA by the name of Joe DioGuardi and I put together a task force. We were going to come up with an accounting system for the Federal Government. We worked on it for 4 years, Senator Voinovich, and nothing happened. So maybe this discussion here today can be the start of something.

I had the Secretary of the Air Force into Tinker Air Force Base this past Friday, and just looking at the way we do business—no depreciation schedules. You don't really know where you are at any given point, except it's money in and money out. Does this bother you?

Mr. POSNER. Yes, I think it's fair to say that your work may have ultimately to fruition because we now have Federal accounting standards. All agencies are required, theoretically, to put together depreciation schedules, have them audited every year. DOD has not in fact been able to be audited still. They're one of the agencies that has not been able to pass a clean audit, and there are longstanding problems with financial management that, as you well know, go back years. One of them is they can't get a good inventory of their property, plant and equipment, which as you rightly say, we expect everyone else in the country to do.

There's a lot of reform going on. We feel there is progress being made. But at least we have accounting standards now. So that's the CFO Act and the following amendments have gotten us on the right track at least.

Mr. GUERRERO. You know, one of the things we point out in our report is that over the last few years, there have been various reforms like the one that Paul mentioned. I'll just rattle off maybe six. There's a Chief Financial Officers Act. There's a Government Performance Results Act that we talked about. There is a Federal Acquisition Streamlining Act, OMB Circular A–11, OMB's Capital Programming Guide, and our own Leading Practices Guide.

When you take the sum total of all this over the last, I would say, 6 years or so, there has been a concerted effort to improve how the Federal Government budgets, reports and thinks about these kinds of issues. It's really a very daunting task. All of these are different pieces of a puzzle that can help us answer this question. I think to some extent, we're doing a good job in some areas, and maybe not as good in other areas. We just need to continue to monitor how these different reform initiatives are working and are they producing the intended result, which is really to get the Congress, in the end, better information to make better decisions.

How do you feel? Are these things helping you? Or is this turning out to be largely a paperwork exercise for the agencies involved, and you're still not getting the information you need.

So that's something we'd be happy to continue to monitor and work with you in the future on, in terms of where can we continue to go in terms of improving how report these things and how useful that information is to you in terms of decisionmaking.

Senator INHOFE. Well, I don't want to steer this into the Senate Armed Services Committee or into Defense, but there is a real serious problem there. You buy a submarine and then one day it's gone, but nobody knows what happens in between.

Mr. POSNER. I think just to followup quickly on what Peter said, I think we've made substantial progress in developing an infrastructure of information. Now we're trying to figure out how do we integrate it in decisions. For example, we have performance information now in these annual performance plans. We have a budget accounting system that's still often oriented toward old-style kind of reporting and decision units, where you're talking about salaries and expenses on one side, but the performance information is outcome-oriented on the other. So how we bring those perspectives together in a way that prompts Congress to think about it as they make decisions—that's the challenge going forward.

Senator VOINOVICH. Start off with finding the time to do it, because we spend all our time on the budget and appropriation bills, and we have very little time for oversight. Many of the agencies that we're charging with responsibility to do the things that you just talked about are so busy with directing their attention to it that they haven't got time to follow through on the management things that they've got to do. You've got to wonder at the way we're organized whether we're going to be able to deal with this next century in terms of our challenges.

I have no other questions.

Senator INHOFE. I don't either. I appreciate very much your taking the time. Sorry for the long wait, and you're dismissed.

[Whereupon at 5:13 p.m. the subcommittee was adjourned to reconvene at the call of the chair.]

[Additional statements submitted for the record follow:]

STATEMENT OF HON. MARC H. MORIAL, MAYOR, NEW ORLEANS, LA, ON BEHALF OF THE U.S. CONFERENCE OF MAYORS

Mr. Chairman and members of the subcommittee, I am Marc H. Morial, Mayor of New Orleans.

I appear today on behalf of the U.S. Conference of Mayors where I serve as the organization's president. The Conference is a bipartisan organization that represents mayors of the more than 1,200 cities with a population of 30,000 or more.

Mr. Chairman, I want to thank you and other members of this subcommittee for holding this hearing today to examine the "Federal Role in Meeting Infrastructure Needs."

OVERVIEW

Let me begin by emphasizing that the Nation's mayors believe that the Federal Government needs to be a strong leader in partnering with cities on local and regional infrastructure projects. We also believe that the Federal Government is uniquely situated to ensure sufficient flows of public capital in meeting the Nation's growing infrastructure needs, including the preservation of existing critical assets, to support an expanding economy.

In my testimony today, I offer some of the mayors' perspectives on the necessity for increasing Federal commitments to infrastructure investment. In providing these views, I include findings of a recent survey of the mayors on these issues. I also offer up a new context or benchmark—investing in our Nation's most potent economic engines, cities and their metropolitan economies—to guide future Federal policy decisions on infrastructure investment. Finally, I describe several infrastructure projects in the city of New Orleans to illustrate some of our needs in this area.

Mr. Chairman, I would begin my remarks by thanking you and the other members of this committee for your leadership in crafting the bipartisan agreement on brownfields and in moving this legislation, S. 350, forward so successfully in the Senate. This legislation will make a real difference in cities, counties and regions throughout the Nation.

There is a clear nexus between recycling America's land through brownfield redevelopment and the infrastructure issues before us today. For too long, we have let these properties—thousands and thousands of acres of land in existing communities and places with substantial infrastructure in place—lay idle, as development races relentlessly to undeveloped and pristine land, ever further away from our built-up areas. We know that this pattern of development has been highly consumptive of our public infrastructure dollars, as we chase ever spreading and lower density development and its associated needs. This form of land use requires infusions of capital for new facilities and systems that is disproportionate to the number of people and economic activity that we are attempting to serve. This is occurring all the while incumbent system needs, both modernization and rehabilitation, are overlooked or ignored, facilities that serve a substantial majority of our citizens.

When past conference president and then Fort Wayne Mayor Paul Helmke testified before this committee at your March 1999 hearings on livability and open space, he helped develop your record on the many linkages among brownfields, infrastructure and urban development.

By embracing S. 350 and other brownfield-related policies, we will, for the first time, take significant action to help decelerate the several decades-old pattern of outward development, while renewing our attention to the substantial public and private investment we have made in existing communities and places. In the very fast growing and relatively new cities and regions, broader brownfield reuse efforts will not be as potent as it will be in most other areas. However, it is a crucial first step in redirecting our public resources inward to places where most Americans now live and work and where the Nation's most crucial economic assets are located.

The mayors applaud this committee's leadership on S. 350 and we are anxious to see final congressional action on brownfields legislation over the next several weeks. We strongly share Committee Chairman Jeffords' goal to have this legislation enacted this summer.

FEDERAL ROLE IN MEETING LOCAL INFRASTRUCTURE NEEDS

Mr. Chairman, let me provide some of our key perspectives on the challenges before this committee, the Congress and the Nation in addressing our Nation's growing infrastructure needs.

Local Infrastructure' Needs Are No Longer a Local Issue

Mr. Chairman, if there is one perspective that I believe is most important to this hearing today, it is that 'local' infrastructure needs are no longer simply a local concern. These needs are of national significance, of national economic importance and of substantial cost, exceeding local capital resources.

It is a given that one of the fundamental functions of government is to ensure that the Nation has a modern and efficient infrastructure to support our societal and economic endeavors. Among the challenges we face locally, like all leaders in government, is to find ways to reinforce in the public's mind the importance of investing in these infrastructures. Sometimes, we can't immediately see the benefits, or in other cases, the benefits are longer term. We know that investment in the Nation's infrastructure is more than an exercise in shifting responsibility among levels of government.

An overriding theme of the Conference's recent efforts has been to call attention to the role of cities and their metropolitan economies in fueling U.S. economic growth. At some point in Nation's economic development, many of the infrastructure needs in cities and regions ceased to function as 'local' infrastructures. Increasingly, these systems are National infrastructures in their scope and importance. Later in my statement, I share some of the Conference's work on metropolitan economics to bolster this claim.

Whether it is Mayor Williams' efforts that anchor a metropolitan economy that influences three States and the District of Columbia, an economic engine that last

year outpaced the economy of Austria or Hong Kong. Or, it is Mayor Campbell's city that anchors a metropolitan economy that generated more output than Norway or Denmark. Consider the New Orleans region, an economic engine that now accounts for nearly one-third of my State's total output and easily surpasses the economies of Kuwait or Syria.

As we look at the broader issue of infrastructure investment, we see the Federal Government as an investor, a partner in building national prosperity. It is an undeniable reality that the U.S. economy will grow or stall, based on the economic performance of our Nation's metro economic engines. Our metro economy reports show this convincingly. They underscore how infrastructure assets fuel the output of these metropolitan engines.

As mayors, we see infrastructure investment, particularly larger scale projects that often surpass locally available resources, as one of the pathways to improved productivity and economic performance of our metropolitan engines. These are investments that influence and shape the rate of U.S. economic growth.

Look at Mayor Campbell's capital plan for Hartsfield, a city-owned facility that serves more people than any airport in the world. This one asset has helped define the economic prosperity of the Southeastern United States. There are numerous examples everywhere of how these infrastructure assets, while perhaps none so dramatic as Hartsfield, now fuel metropolitan output and, in turn, underpin our States and U.S. economic growth.

In recent remarks to the National Press Club, I made the point that the improved health of our Nation's cities and their influence on their metropolitan economies helped drive one the most significant economic expansions in this Nation's history. This did not happen by accident.

Mr. Chairman, when Fort Worth Mayor Ken Barr testified before this subcommittee in last Congress, he first introduced this panel to some of our work on metro economies as well as our perspectives on the implementation of TEA–21. The report that we just released now provides data over the 10-year period, 1990–2000, covering all of the Nation's most recent economic expansion.

We believe that our metro economies data is a powerful tool in helping this committee fashion policies to partner with States and local governments on infrastructure. It can be a new standard upon which to gauge the effectiveness of financing strategies and other efforts and can help policymakers make more strategic investments for the future.

With this context of metropolitan economies as a roadmap for making more strategic infrastructure investments, I want to offer some further observations on where we are in meeting our infrastructure needs.

Sequencing of Major Federal Commitments to Infrastructure

With the enactment of TEA–21, the mayors saw this as a milestone in the national debate on rebuilding the Federal partnership on infrastructure investment. With this legislation in 1998—where the Federal partnership commitment to surface transportation nearly doubled—mayors and others viewed this as the first installment in a broader effort to increase our public commitments to the Nation's infrastructure.

Building upon this legislation, Congress substantially increased funding commitments to the Nation's aviation system with the enactment of AIR–21 in the last Congress. Again, capital commitments to airport capital needs and our national aviation system more broadly were raised to the next level.

Both initiatives—AIR–21 and TEA–21—were badly needed and enacted just in time, as our world-class highway and aviation systems labor under rising demands. But these are not the only systems that are overburdened.

Mayors anxiously awaited this Congress, looking to engage you and others on the need to further enhance our Federal partnership commitments to other infrastructure needs. As you know, mayors have been seeking action on new initiatives to increase capital commitments to intercity rail, rail transit, water and wastewater, parks and school modernization, areas of need that are now on the congressional agenda and in the queue for legislative action.

We see the need for a longer-term Federal infrastructure strategy that builds upon the gains that we made under TEA–21 and AIR–21, while extending this investment thrust into other areas, through initiatives such as WATER–21 and RAIL–21.

You have already built a record on the rapidly escalating needs in the water and wastewater area, with need analyses by the Water Infrastructure Network (WIN), American Water Works Association, U.S. EPA and others.

One of your committee members, Senator Voinovich, has already stepped forward with a legislative plan to begin closing the gap in this area of need. The funding

gap here is driven by what is needed to maintain the integrity of existing systems, while investing in new facilities to meet Federal standards.

One of the areas that the mayors believe warrants particular attention, along with an expanded Federal commitment, is rail transportation. In January, I led a National Mayors' Summit on A National Rail Policy for the 21st Century to begin to begin pressing for increased investment in the Nation's rail infrastructure, both for passenger and freight.

The mayors are seeking enactment of the "High-Speed Rail Investment Act of 2001" (S. 250) as the first installment in this broader national commitment to the Nation's rail infrastructure. Mr. Chairman, I want to underscore the strong support of the mayors for S. 250, legislation that will help us further modernize our Nation's intercity passenger rail capabilities.

Rail transit is another key element of this national policy. Today, these systems are taking root in every part of this country, with more than 200 projects—be it light rail, heavy rail, commuter rail, trolleys and other fixed guideway projects—now being studied, planned or constructed. Later, I provide examples of rail projects now underway in the New Orleans area.

It is now estimated that the pipeline demand for capital for these rail projects already exceeds $35 billion, against an expected Federal commitment in the next fiscal year of about $1.1-$1.2 billion. In our survey, the number and geographic distribution of mayors who cited light rail or other rail transit projects as their city's number surface transportation priority represents a sea change in surface transportation investment priorities.

In the wake of the 1991 ISTEA law, when local areas were given the opportunity to help shape transportation priorities for their local areas and regions, rail investment moved to the forefront of the transportation agenda. We can no longer afford to view this need as an issue for cities and regions of the Northeast or Midwest, it is now national in scope. To amplify this point, consider the pending fiscal year 2002 Transportation appropriations bill, which was recently approved by the Senate Appropriations Committee, where 38 States are represented in the 'new starts' program.

We believe there is much to be done on the rail transportation, both intercity and local projects, that the mayors would urge this committee to consider and work with us on strategies to accelerate investment in these projects.

Mr. Chairman, we recognize revenue expectations have changed dramatically since the first of the year, when mayors and others began pressing to allocate portions of the surplus to these priority infrastructure needs. Nonetheless, we believe we must still find ways to finance these infrastructure needs. Mayors are certainly open to creative mechanisms, like the bond/tax credit approach set forth in S. 250, legislation we strongly support, to further our progress in addressing our Nation's infrastructure needs.

It is not just about more money or doing things in the same old way. In the water and wastewater area, we are seeking reforms that will promote more competition among private companies in delivering more cost-effective solutions to our needs. This effort includes seeking changes in procurement practices and laws to move us away from the more traditional design, bid and build processes to design/build models. We are also advocating approaches that emphasize standards-based compliance, not facility-based compliance. We have called for the adoption of tax and other incentives to attract more private capital in support of our efforts. While we are seeking ways to reduce the costs and promoting new partnerships with the private sector, we don't want to understate the reality of the needs in this area. We know that there is also an urgent need for an expanded Federal partnership on water investment, one that includes additional financial commitments to local areas, to address the surging needs in this area.

As the revenue outlook improves, we would certainly urge you and others to work to dedicate some portion of any future surplus revenues and be open to new revenue sources to finance the many infrastructure needs that we are discussing here today.

City Infrastructure Priorities

To prepare for this hearing, the Conference surveyed 160 mayors to solicit their priority concerns on infrastructure. First, we learned that surface transportation was the No. 1 priority, with more than 50 percent of the mayors choosing this area (defined as highways/streets and transit/rail). One quarter of the mayors indicated that water and wastewater was their city top infrastructure priority, followed by 13 percent of the mayors selecting schools/libraries as their top priority. The remaining respondents chose aviation, telecommunications, parks and other areas of need.

I would point out that these responses generally follow the functional areas where cities play a dominant role. Cities with counties, for example, own and operate

about 80 percent of the Nation's streets and highways, explaining their strong interest here. Many cities do own, but most largely participate in the governance or policy direction of the Nation's transit systems, which are generally regional providers. With regionalization of many water and wastewater services since the 1970's, cities are less dominant in these services, particularly treatment functions, but most own or are responsible for the collection and delivery systems. While schools are most often a function of independent schools districts, libraries are generally a city function as are urban parks. The relative priority of aviation can be explained by the fact that in most metropolitan areas there are only one or two owner/operators who are directly responsible for this infrastructure.

Anticipating the importance of surface transportation issues to the cities, we asked each of the respondents to rank their top three priorities in surface transportation, choosing from a menu of ten items. Nearly 50 percent of the respondents indicated that highway/street maintenance and rehabilitation was their top priority, emphasizing the interest of cities in system preservation. Highway/street capacity was the top priority for 22 percent of the cities, followed by transit capacity as the top choice for 14 percent.

In addition to strong support for streets and transit, I would note that 28 percent selected bridge replacement/rehabilitation, 26 percent selected pedestrian/bicycle/school crossing and 25 percent selected intermodal facilities/system integration as among their top three concerns. These survey results do follow to some degree the basic structure and principles embedded in the TEA–21 legislation.

When mayors were asked to describe what Federal actions would be most helpful in meeting city transportation needs, the self-selected responses (i.e. specify concern) were very consistent. Additional funding was cited most often, followed by requests that more funding flow directly to cities and local areas, rather than stopping at the States. Mayors were also asked to list the single most important project in their city. While there was a broad cross-section of responses, it was notable how many cities indicated that light rail, commuter rail, high-speed rail, continued Amtrak service or other transit projects among their selections.

Mr. Chairman, I would like to offer a couple of observations on the survey that we conducted. It follows some of what we found in our previous survey that Mayor Barr presented to this committee in the last Congress. First, we know that TEA–21 substantially increased the funding commitments to surface transportation. What we don't know yet is how the bulk of these funds move around in the system, given the absence of transparency in the flow of dollars within the States. This was the central theme of Mayor Barr's testimony to this subcommittee during the last Congress.

But we do know that there are some rapidly rising needs in the surface transportation area, particularly in the growing demand for rail projects. Despite dramatically increased funding and the flexibility that is provided under TEA–21, many States are not taking full advantage of what the law allows, particularly in aiding local and regional transportation priorities.

The point to be made about our infrastructure needs is that isn't just about more money, it is also about understanding how current funding is being allocated. TEA–21 was about more than sparing Governors or the States the political inconvenience associated with raising State transportation dollars, it is also about addressing transportation needs in cities and in our metropolitan areas. That is what our efforts on metropolitan economies is all about—to make the point that we need to be using these dollars strategically to make the investments that keep their metropolitan engines running. And, sometimes, these investments may not be the highest priority for State agencies, but are most important to the cities or the metropolitan areas.

Mr. Chairman, I know that we will have an opportunity to discuss these issues with you during renewal of TEA–21, but I thought it was important to indicate how the mayors are thinking about these issues.

Comeback of America's Cities and U.S. Metro Economies

As I previously noted, I recently had the opportunity to address the National Press Club on the Comeback of America's Cities. My message was simply that we have a new reality before us—American cities, the new American City, can no longer be defined by mere political borders or by the jurisdiction that a mayor may serve over. I also made the point that infrastructure investment is one of the "keys" to furthering this Comeback of America's Cities and the continued prosperity of this Nation's economy.

Of particular importance to Federal policymakers is the reality that the growing health and strength of America's cities and their metropolitan economies is now the very reason why America's economy came back.

Mr. Chairman, we have the data that backs this up. Several years ago, we retained one of the Nation's foremost economic firms, DRI–WEFA, to compile annual reports on the economic output of our Nation's metropolitan economies. At the Press Club, I released our new report on the Gross Metropolitan Product (GMP) for the Nation's 319 urbanized areas. It also documented the output of our metro economic engines over the last decade.

Our Metropolitan Economy Report, *U.S. Metro Economies: The Engines of America's Growth, A Decade of Progress*, tells a story that is as significant as any story that's been told in the last 25 years. If you look at American cities—cities as the integral parts of the economic units we call metropolitan economies—and then rank them in terms of the strength of these economies with the Nations of the world, it changes the way you think about the policy choices before the Nation. Ranking these metro economies, not with States, not with regions but with the Nations of the world, these areas represent 47 of the 100 largest economies in this world.

These numbers are so compelling that the economy of New York—yes, the economy of metropolitan New York—is larger than the economy of Australia. Looking at the economies of other cities in their broader metro context, you will find that the economy of Chicago is greater than Taiwan, Argentina, Russia, or Switzerland. Philadelphia and Houston are larger in output than Hong Kong.

But even more significant is looking back on the 1990's, a decade of great economic growth, a decade of new jobs and a decade of expansion in new sectors of the economy, like technology. When we look at where those jobs were created, where that new economy flourished, it was in American cities and in their metropolitan economies. Almost 90 percent of the new jobs and in excess of 90 percent of the technology jobs were created in these areas.

Consider other findings. With 20 percent of the land area and 80 percent of the Nation's population, these 319 areas last year accounted for about 85 percent of all U.S. economic output, a share that is projected to rise over the next couple of decades.

What is particularly striking in its policy implications is the finding that in 2000 the output of the top 10 metropolitan areas exceeded that of 31 States.

Mr. Chairman, when you look at Nevada, we can readily detect what you know about the challenges before your State, and why infrastructure investment is so crucial to the continued economic success of your State and the Nation. The single fastest growing metropolitan economy in the United States over the last 10 years was the Las Vegas metropolitan area, an economic unit strongly influencing your State's growth, with spillover into Arizona. From 1990–2000, this metropolitan economy increased its output from $20.5 billion to $54.6 billion, an astounding increase of more than 166 percent. This represents an annual average growth rate of more than 10 percent.

When you combine the output of the Las Vegas and Reno metro economies, you see that these two areas account for about 90 percent of the entire State's economic output. In Oklahoma, as another example, the metro economies of its two largest urbanized areas, Tulsa and Oklahoma City, account for about 62 percent of the State's output.

Mr. Chairman, we would strongly urge you and other members of this committee to examine this data and consider its implications as you go forward in setting infrastructure investment policies for the Nation. We think this is new information and offers further support to a broader congressional infrastructure agenda.

NEW ORLEANS PRIORITIES

To provide local context for my remarks, I have described some of the major infrastructure projects where the city of New Orleans is seeking Federal assistance. These projects in rail transportation and sewerage infrastructure simply illustrate the scale of the challenges before us.

Canal Streetcar Project

The New Orleans Regional Transit Authority (RTA) is developing a 5.5-mile streetcar project in the downtown area, along the median of Canal Street.

The Canal Streetcar spine will extend from the Canal Ferry at the Mississippi River in the central business district, through the Mid-City neighborhood to Carrolton Avenue, where one branch will continue on Canal Street to the Cemeteries and another will follow Carrollton Avenue to City Park/Beauregard Circle. The corridor is located in an existing, built-up area that was originally developed in the streetcar era. Much of the corridor lies within the central business district and historic areas, where employment and housing densities, mix of uses, and pedestrian-oriented development are generally good. The central business district includes a high-density mix of office, retail, hotels and leisure attractions.

The total capital cost of this project is estimated at $156,600,000, of which our RTA is expected to seek $125,300,000 in 'new starts' funding.

New Orleans Central Business District to Armstrong Airport Light Rail Project

The CBD to NOIA light rail project is a new start project authorized under TEA–21. The project is intended to provide commuter rail transportation via light rail vehicles between the Central Business District and the Louis Armstrong International Airport. In TEA–21, funds were provided for preliminary work associated with the project.

Although we don't have final estimates of the total project costs, it will be a substantial project and we will need the Federal Government as a partner.

Desire Streetcar Project

The Regional Transit Authority (RTA) is restoring a 2.9-mile traditional streetcar line in downtown New Orleans, as part of the locally preferred alternative for the Desire Corridor. The Desire Corridor streetcar project will operate along North Rampart Street and St. Claude Avenue between Canal Street and Poland Avenue. The proposed streetcar alignment will loop at Canal Street and use exclusive right-of-way in the median of city streets, as much as possible. The project will serve the communities of Iberville, Treme, Faubourg, Marigny, St. Roch, and Bywater. Six major bus transfer points with construction of center platforms, canopies, passenger benches, and landscaping will be provided: 16 intermediate stops with less elaborate center platforms are also planned. The project also includes the purchase of 13 new vehicles.

The capital cost estimate of the streetcar project is $93,500,000, of which RTA will be seeking $65,500,000 in FTA funding.

Sewerage and Water Board Inflow & Infiltration Project

The City has embarked on a very ambitious plan to correct the inflow and infiltration of its sewerage lines beneath the streets of the City, as required by a consent decree entered against the City by the U.S. EPA.

Because most of the New Orleans area is below sea level, over time the New Orleans Sewerage and Water Board developed an elaborate drainage system to remove the rainwater that falls every year in tropical amounts on the city. Partially because the system was built in the early part of this century, and also because of the great amount of subsidence and settlement of the soils in the area, the New Orleans Sewerage and Water Board normally spends approximately $5 million per year on line repair and replacement alone.

Although the repair and upgrade of the system is a continuous process, we have not been able to keep up with the highest environmental standards set by the Federal Government. The Board is under a consent order from the Justice Department to undertake this project, with the total costs of the project expected to exceed $400 million.

CLOSING REMARKS

Mr. Chairman, I want to thank you for this opportunity to appear before you today to offer the perspectives of the Nation's mayors on the Federal role in meeting our infrastructure needs.

This is a very high priority concern for the mayors and other local elected officials and we will stand with you and this committee as you examine ways to sustain and expand the Federal partnership commitment to infrastructure investment.

On behalf of the Nation's mayors, I thank you for this opportunity to present the views of the Conference and its members on these important issues.

Top 100 U.S. Metro Economies

RANKING (2000)

GROSS METROPOLITAN PRODUCT (GMP), US$ BILLIONS

THE UNITED STATES CONFERENCE OF MAYORS

Rank	U.S. City/County Metro Areas	GMP 2000	Rank	U.S. City/County Metro Areas	GMP 2000
1	New York, NY	437.8	51	Greensboro-W-Salem-High Point,NC	46.3
2	Los Angeles-L Beach, CA	363.7	52	Rochester, NY	45.7
3	Chicago, IL	332.8	53	Richmond-Petersburg, VA	45.7
4	Boston, MA	238.8	54	Nashville, TN	45.2
5	Washington, DC-MD-VA-WV	217.0	55	Raleigh-Durham-Chapel Hill, NC	44.3
6	Philadelphia, PA-NJ	182.4	56	Jacksonville, FL	43.0
7	Houston, TX	177.5	57	Gr Rapids-Muskegon-Holland, MI	42.3
8	Atlanta, GA	164.2	58	Memphis, TN-AR-MS	38.9
9	Dallas, TX	160.0	59	Louisville, KY-IN	38.7
10	Detroit, MI	156.3	60	Albany-Schenectady-Troy, NY	37.8
11	Orange Co, CA	130.0	61	W Palm Beach-Boca Raton, FL	33.2
12	Minneapolis-St. Paul, MN-WI	121.3	62	Honolulu, HI	33.0
13	Seattle-Bellevue-Everett, WA	115.0	63	Monmouth-Ocean, NJ	33.0
14	Phoenix-Mesa, AZ	114.2	64	Providence-Warwick, RI	32.5
15	San Francisco, CA	107.3	65	Oklahoma City, OK	32.3
16	Nassau-Suffolk, NY	106.8	66	Birmingham, AL	32.0
17	San Diego, CA	104.6	67	Wilmington-Newark, DE	31.4
18	Newark, NJ	96.3	68	Dayton-Springfield, OH	31.2
19	Baltimore, MD	96.2	69	Manchester-Nashua, NH	30.2
20	Oakland, CA	92.1	70	Syracuse, NY	30.1
21	Denver, CO	91.1	71	Greenville-Spartanburg-Anderson, SC	29.9
22	St. Louis, MO-IL	89.6	72	Jersey City, NJ	28.1
23	San Jose, CA	85.4	73	Harrisburg-Lebanon-Carlisle, PA	27.1
24	Riverside-San Bernardino, CA	84.1	74	Fresno, CA	26.3
25	Tampa-St. Petersburg-Clrwater, FL	82.2	75	Omaha, NE-IA	26.2
26	Clevelagd-Lorain-Elyria, OH	80.8	76	Tulsa, OK	25.7
27	Pittsburgh, PA	80.7	77	Albuquerque, NM	25.6
28	New Haven-BrPt-Stamford-Danbury-Waterbury, CT	76.8	78	Ventura, CA	24.5
29	Miami, FL	71.6	79	Tucson, AZ	22.9
30	Portland-Vancouver, OR-WA	71.5	80	Akron, OH	21.9
31	Kansas City, MO-KS	64.8	81	Knoxville, TN	21.5
32	Hartford, CT	64.3	82	Toledo, OH	21.2
33	Middlesex-Somerset-Hunterdon, NJ	63.6	83	Springfield, MA	20.9
34	Sacramento, CA	63.1	84	Allentown-Bethlehem-Easton, PA	20.6
35	Fort Worth-Arlington, TX	63.0	85	Scranton-Wilkes-Barre-Hazelton, PA	20.6
36	Charlotte-Gastonia-Rock Hill, NC-SC	61.3	86	Santa Rosa, CA	20.5
37	Columbus, OH	60.7	87	Baton Rouge, LA	20.4
38	Orlando, FL	59.5	88	Des Moines, IA	19.1
39	Cincinnati, OH-KY-IN	59.4	89	Ann Arbor, MI	19.1
40	Bergen-Passaic, NJ	59.3	90	Columbia, SC	19.1
41	Indianapolis, IN	57.7	91	Tacoma, WA	19.0
42	Milwaukee-Waukesha, WI	54.8	92	Bakersfield, CA	18.9
43	Las Vegas, NV-AZ	54.6	93	Fort Wayne, IN	18.6
44	San Antonio, TX	53.7	94	El Paso, TX	18.6
45	Norfolk-Virginia Beach-Newport News, VA-NC	51.7	95	Trenton, NJ	18.5
46	Austin-San Marcos, TX	48.2	96	Little Rock-North Little Rock, AR	18.4
47	Buffalo-Niagara Falls, NY	47.8	97	Madison, WI	18.4
48	Fort Lauderdale, FL	46.7	98	Lafayette, LA	18.2
49	New Orleans, LA	46.5	99	Lexington, KY	17.8
50	Salt Lake City-Ogden, UT	46.4	100	Colorado Springs, CO	17.6

*City/County Metros are the 319 metropolitan areas defined by U.S.OMB.

Source: DRI • WEFA

If U.S. City/County Metro Economies Were Nations

World Rankings on Gross Domestic and Metropolitan Product
2000 (U.S. Billions, Current)

THE UNITED STATES CONFERENCE OF MAYORS

Rank	Nation or Metro Area	GP 2000	Rank	Nation or Metro Area	GP 2000	Rank	Nation or Metro Area	GP 2000	Rank	Nation or Metro Area	GP 2000
1	United States	9,963.00	44	Finland	118.00	87	Cincinnati, OH-KY-IN	59.40	130	Syracuse, NY	30.10
2	Japan	4,614.00	45	Seattle-Bellevue-Everett, WA	115.00	88	Bergen-Passaic, NJ	59.30	131	Greenville-Spartanburg-Anderson, SC	29.90
3	Germany	1,873.00	46	Phoenix-Mesa, AZ	114.20	89	Indianapolis, IN	57.70	132	Jersey City, NJ	28.10
4	United Kingdom	1,410.00	47	Greece	110.90	90	Nigeria	54.90	133	Harrisburg-Lebanon-Carlisle, PA	27.10
5	France	1,286.00	48	Israel	108.00	91	Milwaukee-Waukesha, WI	54.80	134	Fresno, CA	26.30
6	China	1,104.00	49	SanFrancisco, CA	107.30	92	Las Vegas, NV-AZ	54.60	135	Omaha, NE-IA	26.20
7	Italy	1,074.00	50	Nassau-Suffolk, NY	106.80	93	San Antonio, TX	53.70	136	Tulsa, OK	25.70
8	Canada	699.00	51	San Diego, CA	104.80	94	Algeria	52.80	137	Albuquerque, NM	25.60
9	Brazil	665.00	52	Venezuela	102.90	95	New Zealand	52.10	138	Iraq	25.50
10	Mexico	578.00	53	Portugal	100.50	96	Norfolk-Virginia Beach-Newport News, VA-NC	51.70	139	Ventura, CA	24.50
11	Spain	557.00	54	Newark, NJ	96.30	97	Czech	50.80	140	Tucson, AZ	22.90
12	India	510.00	55	Baltimore, MD	96.20	98	Austin-San Marcos, TX	48.20	141	Akron, OH	21.90
13	Korea, South	480.00	56	Ireland	95.10	99	Buffalo-Niagara Falls, NY	47.80	142	Knoxville, TN	21.50
14	New York, NY	437.80	57	Singapore	93.70	100	Hungary	47.40	143	Toledo, OH	21.20
15	Australia	428.00	58	Oakland, CA	92.10	101	Fort Lauderdale, FL	46.70	144	Springfield, MA	20.90
16	Los Angeles-Long Beach, CA	363.70	59	Egypt	91.50	102	New Orleans, LA	46.50	145	Allentown-Bethlehem-Easton, PA	20.60
17	Netherlands	360.00	60	Denver, CO	91.10	103	Salt Lake City-Ogden, UT	46.40	146	Scranton-Wilkes-Barre-Hazelton, PA	20.60
18	Chicago, IL	332.80	61	Colombia	90.00	104	Greensboro-Winston-Salem-HighPoint, NC	46.30	147	Santa Rosa, CA	20.50
19	Taiwan	323.00	62	St. Louis, MO-IL	89.60	105	Rochester, NY	45.70	148	Uruguay	20.49
20	Argentina	284.00	63	Malaysia	88.90	106	Richmond-Petersburg, VA	45.70	149	Baton Rouge, LA	20.40
21	Russia	247.00	64	SanJose, CA	85.40	107	Nashville, TN	45.20	150	Slovakia	20.20
22	Switzerland	241.30	65	Riverside-San Bernardino, CA	84.10	108	Raleigh-Durham-Chapel Hill, NC	44.30	151	Tunisia	19.96
23	Boston, MA	238.80	66	Tampa-StPetersb-Clrwater, FL	82.20	109	Jacksonville, FL	43.00	152	Dominican Republic	19.67
24	Belgium	227.00	67	Cleveland-Lorain-Elyria, OH	80.80	110	GrRapids-Muskegon-Holland, MI	42.30	153	Des Moines, IA	19.10
25	Sweden	224.10	68	Pittsburgh, PA	80.70	111	Memphis, TN-AR-MS	38.90	154	Ann Arbor, MI	19.10
26	Turkey	217.60	69	Philippines	78.00	112	Louisville, KY-IN	38.70	155	Columbia, SC	19.10
27	Washington, DC-MD-VA-WV	217.00	70	New Haven-BrPt-Stamford-Danbury-Waterbury, CT	76.80	113	Bangladesh	38.50	156	Guatemala	19.05
28	Austria	184.90	71	Chile	73.00	114	Kuwait	38.05	157	Tacoma, WA	19.00
29	Philadelphia, PA-NJ	182.40	72	Miami, FL	71.60	115	Albany-Schenectady-Troy, NY	37.80	158	Croatia (Hrvatska)	19.00
30	Houston, TX	177.50	73	Portland-Vancouver, OR-WA	71.50	116	Syria	35.53	159	Bakersfield, CA	18.90
31	Hong Kong	164.60	74	Iran	67.10	117	Morocco	34.80	160	Oman	18.82
32	Atlanta, GA	164.20	75	Puerto Rico	65.30	118	West Palm Beach-Boca Raton, FL	33.20	161	Fort Wayne, IN	18.60
33	Norway	164.00	76	Kansas City, MO-KS	64.80	119	Honolulu, HI	33.00	162	El Paso, TX	18.60
34	Poland	163.00	77	Hartford, CT	64.30	120	Monmouth-Ocean, NJ	33.00	163	Trenton, NJ	18.50
35	Dallas, TX	160.00	78	Middlesex-Somerset-Hunterdon, NJ	63.60	121	Romania	33.00	164	Slovenia	18.47
36	Denmark	158.00	79	Sacramento, CA	63.10	122	Providence-Warwick, RI	32.50	165	Little Rock-North Little Rock, AR	18.40
37	Detroit, MI	156.30	80	Fort Worth-Arlington, TX	63.00	123	Oklahoma City, OK	32.30	166	Madison, WI	18.40
38	Indonesia	147.60	81	Pakistan	62.70	124	Birmingham, AL	32.00	167	Lafayette, LA	18.20
39	Saudi Arabia	145.30	82	Peru	62.70	125	Ukraine	31.70	168	Kazakhstan	18.20
40	South Africa	132.30	83	Charlotte-Gastonia-Rock Hill, NC-SC	61.30	126	Wilmington-Newark, DE	31.40	169	Luxembourg	18.10
41	Orange County, CA	130.00	84	Columbus, OH	60.70	127	Dayton-Springfield, OH	31.20	170	Lexington, KY	17.80
42	Thailand	128.20	85	United Arab	60.70	128	Vietnam	30.60	171	Colorado Springs, CO	17.60
43	Minneapolis-St. Paul, MN-WI	121.30	86	Orlando, FL	59.50	129	Manchester-Nashua, NH	30.20	172	Wichita, KS	17.50

City/County Metro Areas Nations

Source: DRI • WEFA

Top Percentage Growth Rates for U.S. City/County Metro Economies

Ranking Based on Growth Rate of Gross Metropolitan Product (GMP) 1990-2000 (U.S. Billions, Current)

THE UNITED STATES CONFERENCE OF MAYORS

Rank	Metro Area	1990	2000	% Change
1	Las Vegas, NV-AZ	20.5	54.6	166.3
2	Austin-San Marcos, TX	18.8	48.2	156.4
3	Laredo, TX	2.7	6.6	144.4
4	Provo-Orem, UT	3.4	8.3	144.1
5	Boise City, ID	5.9	14.4	144.1
6	Phoenix-Mesa, AZ	47.3	114.2	141.4
7	Colorado Springs, CO	7.3	17.6	141.1
8	Myrtle Beach, SC	2.9	6.9	137.9
9	Fort Collins-Loveland, CO	3.5	8.3	137.1
10	Greeley, CO	2.2	5.2	136.4
11	Yolo, CA	3.9	8.9	128.2
12	Albuquerque, NM	11.3	25.6	126.5
13	Yuma, AZ	1.2	2.7	125.0
14	Corvallis, OR	1.2	2.7	125.0
15	Atlanta, GA	73.4	164.2	123.7
16	Grand Junction, CO	1.7	3.8	123.5
17	Sioux Falls, SD	3.6	8.0	122.2
18	Boulder-Longmont, CO	5.4	12.0	122.2
19	Salt Lake City-Ogden, UT	21.1	46.4	119.9
20	Fayetteville-Springdale-Rogers, AR	4.1	9.0	119.5
21	Denver, CO	41.8	91.1	117.9
22	Santa Rosa, CA	9.5	20.5	115.8
23	Raleigh-Durham-Chapel Hill, NC	20.7	44.3	114.0
24	Wilmington, NC	3.6	7.7	113.9
25	Green Bay, WI	-4.7	10.0	112.8
26	Naples, FL	3.2	6.8	112.5
27	McAllen-Edinburg-Mission, TX	5.1	10.8	111.8
28	Orlando, FL	28.2	59.5	111.0
29	Jackson, TN	1.9	4.0	110.5
30	Pueblo, CO	2.0	4.2	110.0
31	Portland-Vancouver, OR-WA	34.1	71.5	109.7
32	Charlotte-Gastonia-Rock Hill, NC-SC	29.3	61.3	109.2
33	Killeen-Temple, TX	3.5	7.3	108.6
34	Tucson, AZ	11.0	22.9	108.2
35	San Antonio, TX	25.8	53.7	108.1
36	Nashville, TN	21.9	45.2	106.4
37	Dallas, TX	77.6	160.0	106.2
38	San Luis Obispo-Atascadero-Paso Robles, CA	4.9	10.1	106.1
39	Santa Fe, NM	2.2	4.5	104.5
40	Clarksville-Hopkinsville, TN-KY	2.2	4.5	104.5
41	Manchester-Nashua, NH	14.8	30.2	104.1
42	Medford-Ashford, OR	2.5	5.1	104.0
43	Bryan-College Station, TX	2.6	5.3	103.8
44	Ocala, FL	2.9	5.9	103.4
45	Salem, OR	4.9	9.9	102.0
46	Fort Worth-Arlington, TX	31.4	63.0	100.6
47	Athens, GA	2.7	5.4	100.0
48	Bloomington-Normal, IL	4.1	8.2	100.0
49	Columbia, MO	2.5	5.0	100.0
50	Springfield, MO	5.4	10.8	100.0
51	Las Cruces, NM	1.8	3.6	100.0
52	Eugene-Springfield, OR	5.2	10.4	100.0
53	Rapid City, SD	1.5	3.0	100.0
54	Bellingham, WA	2.7	5.4	100.0
55	Reno, NV	7.4	14.7	98.6
56	Grand Rapids-Muskegon-Holland, MI	21.4	42.3	97.7
57	Brownsville-Harlingen-San Benito, TX	3.8	7.5	97.4
58	Tampa-St. Petersburg-Clearwater, FL	41.7	82.2	97.1
59	Merced, CA	3.1	6.1	96.8
60	Sarasota-Bradenton, FL	8.6	16.9	96.5
61	Joplin, MO	2.8	5.5	96.4
62	Jacksonville, FL	21.9	43.0	96.3
63	Fort Walton Beach, FL	2.6	5.1	96.2
64	Columbus, GA-AL	5.0	9.8	96.0
65	Biloxi-Gulfport-Pascagoula, MS	4.8	9.4	95.8
66	Waco, TX	4.0	7.8	95.0
67	Victoria, TX	1.7	3.3	94.1
68	Olympia, WA	3.3	6.4	93.9
69	Knoxville, TN	11.1	21.5	93.7
70	St. Cloud, MN	3.1	6.0	93.5
71	Houston, TX	91.8	177.5	93.4
72	W Palm Beach-Boca Raton, FL	17.2	33.2	93.0
73	Lawrence, KS	1.4	2.7	92.9
74	Spokane, WA	8.0	15.4	92.5
75	Chico-Paradise, CA	3.9	7.5	92.3
76	Modesto, CA	7.8	15.0	92.3
77	Amarillo, TX	3.9	7.5	92.3
78	Eau Claire, WI	2.5	4.8	92.0
79	Wausau, WI	2.5	4.8	92.0
80	Jonesboro, AR	1.2	2.3	91.7
81	Wilmington-Newark, DE	16.4	31.4	91.5
82	Houma, LA	4.5	8.6	91.1
83	Hamilton-Middletown, OH	4.5	8.6	91.1
84	Greenville, NC	2.2	4.2	90.9
85	Fort Lauderdale, FL	24.5	46.7	90.6
86	Dover, DE	2.0	3.8	90.0
87	Pocatello, ID	1.0	1.9	90.0
88	Tacoma, WA	10.0	19.0	90.0
89	Lexington, KY	9.4	17.8	89.4
90	Riverside-San Bernardino, CA	44.5	84.1	89.0
91	Barnstable-Yarmouth, MA	3.6	6.8	88.9
92	Longview-Marshall, TX	4.5	8.5	88.9
93	Tyler, TX	3.6	6.8	88.9
94	Seattle-Bellevue-Everett, WA	60.9	115.0	88.8
95	Fort Myers-Cape Coral, FL	6.0	11.3	88.3
96	Kenosha, WI	1.7	3.2	88.2
97	Lincoln, NE	5.1	9.6	88.2
98	Memphis, TN-AR-MS	20.7	38.9	87.9
99	Fort Wayne, IN	9.9	18.6	87.9
100	Richland-Kennewick-Pasco, WA	3.3	6.2	87.9
101	Visalia-Tulare-Porterville, CA	5.6	10.5	87.5
102	Panama City, FL	2.4	4.5	87.5
103	Owensboro, KY	1.6	3.0	87.5
104	Hattiesburg, MS	1.6	3.0	87.5
105	Appleton-Oshkosh-Neenah, WI	7.2	13.5	87.5
106	La Crosse, WI-MN	2.4	4.5	87.5
107	Fargo-Moorhead, ND-MN	3.1	5.8	87.1
108	Middlesex-Somerset-Hunterdon, NJ	34.0	63.6	87.1
109	Minneapolis-St. Paul, MN-WI	64.9	121.3	86.9
110	Indianapolis, IN	30.9	57.7	86.7
111	Mobile, AL	7.5	14.0	86.7
112	Missoula, MT	1.5	2.8	86.7
113	Sumter, SC	1.5	2.8	86.7
114	Chattanooga, TN-GA	9.4	17.5	86.2
115	Jersey City, NJ	15.1	28.1	86.1
116	Omaha, NE-IA	14.1	26.2	85.8
117	Fort Smith, AR-OK	3.4	6.3	85.3
118	Greensboro-Winston-Salem-High Point,NC	25.0	46.3	85.2
119	Flagstaff, AZ-UT	2.0	3.7	85.0
120	San Angelo, TX	2.0	3.7	85.0
121	Macon, GA	6.5	12.0	84.6
122	Punta Gorda, FL	1.3	2.4	84.6
123	Iowa City, IA	1.9	3.5	84.2
124	El Paso, TX	10.1	18.6	84.2
125	Albany, GA	2.5	4.6	84.0
126	Madison, WI	10.0	18.4	84.0
127	Rochester, MN	2.9	5.3	82.8
128	Yakima, WA	3.4	6.2	82.4
129	Fayetteville, NC	3.9	7.1	82.1

Source: DRI • WEFA

Top Average Annual Growth Rates for U.S. City/County Metro Economies

THE UNITED STATES CONFERENCE OF MAYORS

Ranking by Average Annual Growth Rate in Gross Metropolitan Product (GMP) 1990-2000 (U.S. Billions, Current)

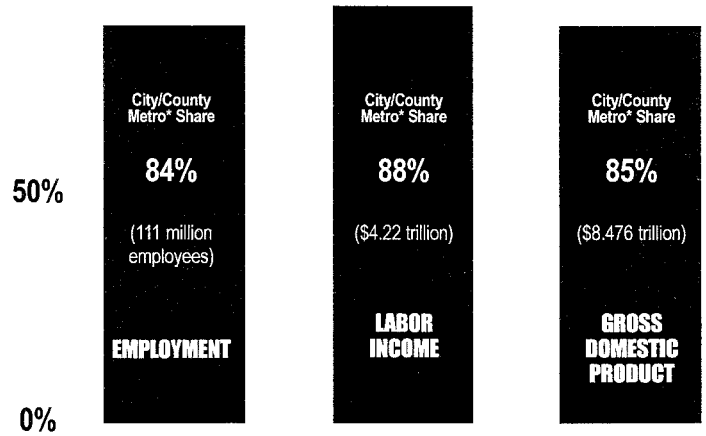
Rank	Metro Area	1990	2000	Avg. Annual % Change
1	Las Vegas, NV-AZ	20.5	54.6	10.3
2	Austin-San Marcos, TX	18.8	48.2	9.8
3	Boise City, ID	5.9	14.4	9.4
4	Laredo, TX	2.7	6.6	9.4
5	Phoenix-Mesa, AZ	47.3	114.2	9.2
6	Fort Collins-Loveland, CO	3.5	8.3	9.2
7	Provo-Orem, UT	3.4	8.3	9.2
8	Colorado Springs, CO	7.3	17.6	9.1
9	Greeley, CO	2.2	5.2	9.1
10	Myrtle Beach, SC	2.9	6.9	9.1
11	Yolo, CA	3.9	8.9	8.5
12	Grand Junction, CO	1.7	3.8	8.5
13	Albuquerque, NM	11.3	25.6	8.5
14	Atlanta, GA	73.4	164.2	8.4
15	Corvallis, OR	1.2	2.7	8.4
16	Boulder-Longmont, CO	5.4	12.0	8.3
17	Sioux Falls, SD	3.6	8.0	8.3
18	Salt Lake City-Ogden, UT	21.1	46.4	8.2
19	Fayetteville-Springdale-Rogers, AR	4.1	9.0	8.1
20	Denver, CO	41.8	91.1	8.1
21	Santa Rosa, CA	9.5	20.5	8.0
22	Yuma, AZ	1.2	2.7	7.9
23	Naples, FL	3.2	6.8	7.9
24	Raleigh-Durham-Chapel Hill, NC	20.7	44.3	7.9
25	Wilmington, NC	3.6	7.7	7.9
26	Orlando, FL	28.2	59.5	7.8
27	McAllen-Edinburg-Mission, TX	5.1	10.8	7.8
28	Green Bay, WI	4.7	10	7.8
29	Charlotte-Gastonia-Rock Hill, NC-SC	29.3	61.3	7.7
30	Portland-Vancouver, OR-WA	34.1	71.5	7.7
31	Jackson, TN	1.9	4.0	7.7
32	Tucson, AZ	11.0	22.9	7.6
33	San Antonio, TX	25.8	53.7	7.6
34	San Luis Obispo-Atascadero-Paso Robles, CA	4.9	10.1	7.5
35	Medford-Ashford, OR	2.5	5.1	7.5
36	Nashville, TN	21.9	45.2	7.5
37	Dallas, TX	77.6	160	7.5
38	Pueblo, CO	2.0	4.2	7.4
39	Manchester-Nashua, NH	14.8	30.2	7.4
40	Santa Fe, NM	2.2	4.5	7.4
41	Bryan-College Station, TX	2.6	5.3	7.4
42	Killeen-Temple, TX	3.5	7.3	7.4
43	Ocala, FL	2.9	5.9	7.3
44	Salem, OR	4.9	9.9	7.3
45	Clarksville-Hopkinsville, TN-KY	2.2	4.5	7.3
46	Fort Walton Beach, FL	2.6	5.1	7.2
47	Eugene-Springfield, OR	5.2	10.4	7.2
48	Fort Worth-Arlington, TX	31.4	63.0	7.2
49	Athens, GA	2.7	5.4	7.1
50	Bloomington-Normal, IL	4.1	8.2	7.1
51	Grand Rapids-Muskegon-Holland, MI	21.4	42.3	7.1
52	Biloxi-Gulfport-Pascagoula, MS	4.8	9.4	7.1
53	Springfield, MO	5.4	10.8	7.1
54	Reno, NV	7.4	14.7	7.1
55	Brownsville-Harlingen-San Benito, TX	3.8	7.5	7.1
56	Jacksonville, FL	21.9	43.0	7.0
57	Sarasota-Bradenton, FL	8.6	16.9	7.0
58	Tampa-St. Petersburg-Clearwater, FL	41.7	82.2	7.0
59	Pocatello, ID	1.0	1.9	7.0
60	Las Cruces, NM	1.8	3.6	7.0
61	Merced, CA	3.1	6.1	6.9
62	Columbus, GA-AL	5.0	9.8	6.9
63	Columbia, MO	2.5	5.0	6.9
64	Joplin, MO	2.8	5.5	6.9
65	Rapid City, SD	1.5	3.0	6.9
66	Bellingham, WA	2.7	5.4	6.9
67	Olympia, WA	3.3	6.4	6.9
68	Modesto, CA	7.8	15.0	6.8
69	West Palm Beach-Boca Raton, FL	17.2	33.2	6.8
70	Knoxville, TN	11.1	21.5	6.8
71	Houston, TX	91.8	177.5	6.8
72	Victoria, TX	1.7	3.3	6.8
73	Waco, TX	4.0	7.8	6.8
74	Spokane, WA	8.0	15.4	6.8
75	Eau Claire, WI	2.5	4.8	6.8
76	Flagstaff, AZ-UT	2.0	3.7	6.7
77	Wilmington-Newark, DE	16.4	31.4	6.7
78	Fort Lauderdale, FL	24.5	46.7	6.7
79	Lawrence, KS	1.4	2.7	6.7
80	Houma, LA	4.5	8.6	6.7
81	Barnstable-Yarmouth, MA	3.6	6.8	6.7
82	St. Cloud, MN	3.1	6.0	6.7
83	Missoula, MT	1.5	2.8	6.7
84	Amarillo, TX	3.9	7.5	6.7
85	Longview-Marshall, TX	4.5	8.5	6.7
86	Tyler, TX	3.6	6.8	6.7
87	Tacoma, WA	10.0	19.0	6.7
88	Wausau, WI	2.5	4.8	6.7
89	Chico-Paradise, CA	3.9	7.5	6.6
90	Riverside-San Bernardino, CA	44.5	84.1	6.6
91	Dover, DE	2.0	3.8	6.6
92	Lexington, KY	9.4	17.8	6.6
93	Lincoln, NE	5.1	9.6	6.6
94	Greenville, NC	2.2	4.2	6.6
95	Fargo-Moorhead, ND-MN	3.1	5.8	6.6
96	Hamilton-Middletown, OH	4.5	8.6	6.6
97	Seattle-Bellevue-Everett, WA	60.9	115	6.6
98	Fort Smith, AR-OK	3.4	6.3	6.5
99	Jonesboro, AR	1.2	2.3	6.5
100	Visalia-Tulare-Porterville, CA	5.6	10.5	6.5
101	Fort Myers-Cape Coral, FL	6.0	11.3	6.5
102	Fort Wayne, IN	9.9	18.6	6.5
103	Indianapolis, IN	30.9	57.7	6.5
104	Minneapolis-St. Paul, MN-WI	64.9	121.3	6.5
105	Middlesex-Somerset-Hunterdon, NJ	34.0	63.6	6.5
106	Memphis, TN-AR-MS	20.7	38.9	6.5
107	Richland-Kennewick-Pasco, WA	3.3	6.2	6.5
108	Kenosha, WI	1.7	3.2	6.5
109	La Crosse, WI-MN	2.4	4.5	6.5
110	Mobile, AL	7.5	14.0	6.4
111	Macon, GA	6.5	12.0	6.4
112	Iowa City, IA	1.9	3.5	6.4
113	Omaha, NE-IA	14.1	26.2	6.4
114	Jersey City, NJ	15.1	28.1	6.4
115	Greensboro-Winston-Salem-High Point,NC	25.0	46.3	6.4
116	Chattanooga, TN-GA	9.4	17.5	6.4
117	Appleton-Oshkosh-Neenah, WI	7.2	13.5	6.4
118	Panama City, FL	2.4	4.5	6.3
119	Rochester, MN	2.9	5.3	6.3
120	Hattiesburg, MS	1.6	3.0	6.3
121	Sumter, SC	1.5	2.8	6.3
122	El Paso, TX	10.1	18.6	6.3
123	Madison, WI	10.0	18.4	6.3
124	Sacramento, CA	34.7	63.1	6.2
125	Vallejo-Fairfield-Napa, CA	8.0	14.5	6.2
126	Punta Gorda, FL	1.3	2.4	6.2
127	Albany, GA	2.5	4.6	6.2
128	Fayetteville, NC	3.9	7.1	6.2
129	Jacksonville, NC	1.4	2.5	6.2

Source: DRI • WEFA

City/County Metros ECONOMIC GAINS

Metro areas generate nearly 85% of the Nation's employment, income, and production of goods and services.

Shares of U.S. Economy — 2000



*City/County Metros are the 319 metropolitan areas defined by U.S.OMB.

Source: DRI • WEFA

THE UNITED STATES CONFERENCE OF MAYORS

City/County Metros

GMP VS. GSP (2000)

The Gross Product of the ten largest City/County Metro areas* in the U.S. exceeds the combined output of the following 31 states.

Total Gross Metro Product
$2.43 trillion

New York, NY
Los Angeles-Long Beach, CA
Chicago, IL
Boston, MA
Washington, DC-MD-VA-WV
Philadelphia, PA-NJ
Houston, TX
Atlanta, GA
Dallas, TX
Detroit, MI

> is greater than

Total Gross State Product
$2.39 trillion

Tennessee
Connecticut
Colorado
Arizona
Louisiana
Alabama
Kentucky
South Carolina
Oregon
Iowa
Oklahoma
Kansas
Nevada
Mississippi
Arkansas
Utah
Nebraska
New Mexico
West Virginia
New Hampshire
Hawaii
Delaware
Maine
Idaho
Rhode Island
Alaska
South Dakota
Montana
Wyoming
North Dakota
Vermont

*City/County Metros are the 319 metropolitan areas defined by U.S.OMB.

Source: DRI • WEFA

THE UNITED STATES CONFERENCE OF MAYORS

City/County Metros ECONOMIC GAINS

Between 1990 and 2000, City/County Metro* Economies contributed 86% or more than

$3.6 trillion

of the growth in the Nation's Economy

*City/County Metros are the 319 metropolitan areas defined by U.S.OMB.

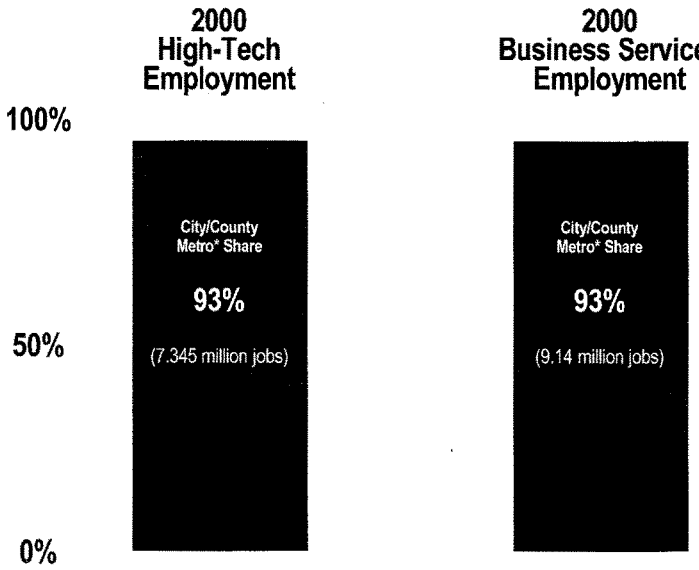
Source: DRI • WEFA

THE UNITED STATES CONFERENCE OF MAYORS

City/County Metros

ECONOMIC GAINS

Two of the fastest growing segments of the U.S. economy, high-tech and business services, are almost entirely located within metro areas.



*City/County Metros are the 319 metropolitan areas defined by U.S.OMB.

Source: DRI • WEFA

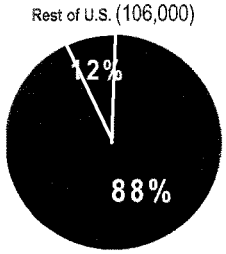
THE UNITED STATES CONFERENCE OF MAYORS

City/County Metros

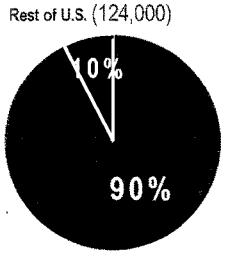
ECONOMIC GAINS

Over the past decade, the majority of new jobs in the financial services and transportation and utilites sectors have been created in metro areas.

Financial Services 1990 – 2000



Transportation & Utilities 1990 – 2000



*City/County Metros are the 319 metropolitan areas defined by U.S.OMB.

Source: DRI • WEFA

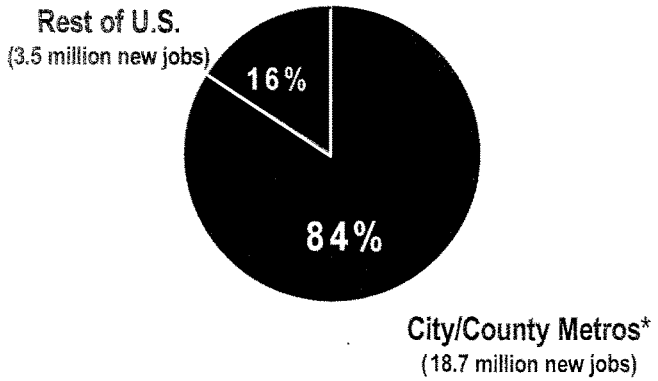
THE UNITED STATES CONFERENCE OF MAYORS

City/County Metros

ECONOMIC GAINS

From 1990 to 2000, most of the economic gains made in the United States were generated within cities and counties in metro areas.

New Jobs Created Between 1990 and 2000



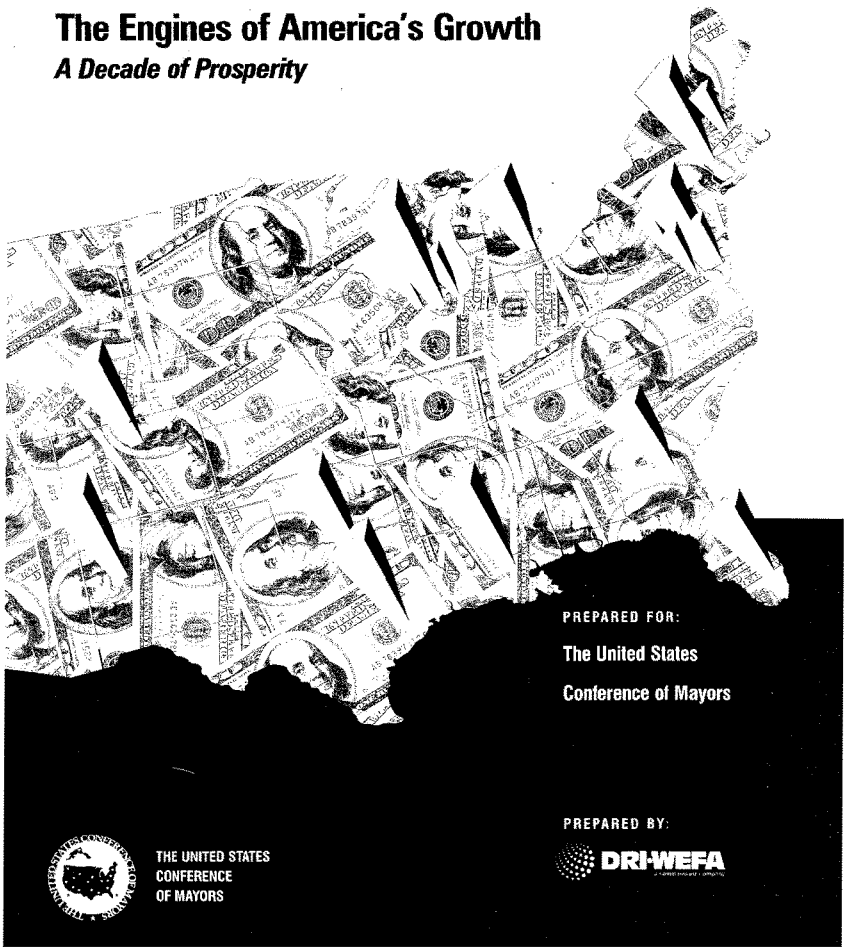
*City/County Metros are the 319 metropolitan areas defined by U.S.OMB.

Source: DRI • WEFA

U.S. Metro Economies

The Engines of America's Growth

A Decade of Prosperity



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THE UNITED STATES CONFERENCE OF MAYORS

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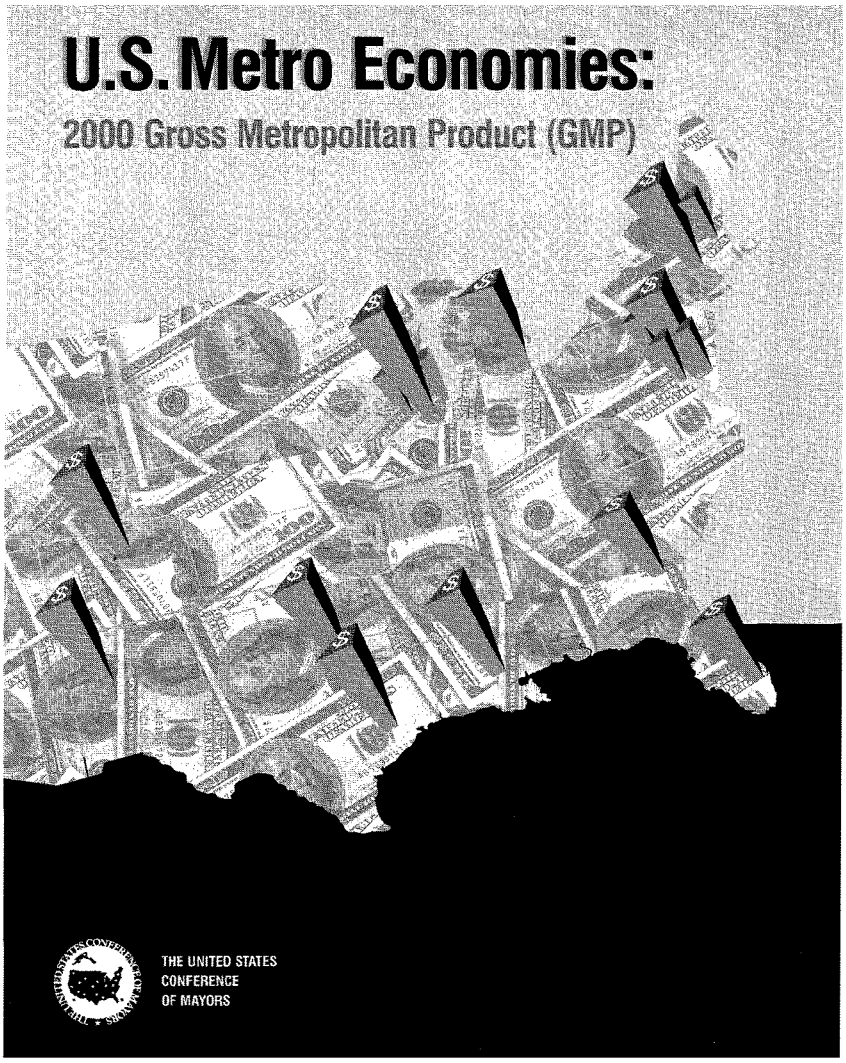
U.S. Metro Economies:
2000 Gross Metropolitan Product (GMP)
THE UNITED STATES
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OF MAYORS

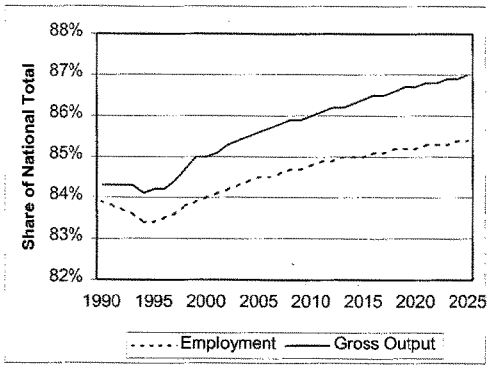
The Role of Metropolitan Areas in the National Economy

As the focal points of economic activity, metropolitan areas are vital to the nation's economic development. While states are defined by geographic and political boundaries, metro areas are shaped by economic activity, sometimes across state or national borders. The concentration of people and business in metro areas creates unique economic conditions that give rise to new industries, speed the diffusion of knowledge, spur technological innovation, and increase productivity. The economic dynamism and creativity found in metro areas enables American industries to thrive in global competition. Historically, most of the largest U.S. industries began in cities, where access to labor, capital, and customers fostered business development. Today, metro areas generate more than 80% of the nation's employment, income, and production of goods and services.

1 The Recent Performance of Metropolitan Area Economies

The contribution of metro areas to the national economy has increased over the last decade, a trend that is expected to continue over the next twenty-five years. Metro area employment increased from 92.1 million in 1990 to 110.8 million in 2000, growing at a 1.9% annual rate over the decade. In 2000, metro area employment posted a solid 2.6% gain. The share of employment in metro areas fell slightly in the first half of the 1990s before rebounding to a new high of 84.0% last year.

Figure 1 - The Contribution of Metro Areas to the National Economy Will Continue to Grow



Gross metropolitan product, the value of goods and services produced in metro areas, increased from $4.812 trillion in 1990 to $8.476 trillion in 2000, an average gain of 5.8% annually. After adjusting for inflation, this represented an annual growth rate of 3.5%. The share of the nation's output produced in metro areas advanced from 84.3% at the beginning of the decade to 84.7% in 2000. DRI-WEFA projects that the contribution of metro areas to U.S. gross domestic product will increase steadily over the next 25 years, reaching 86.9% by 2025.

Metro area economies now compare even more favorably with international economies than they did a decade ago. The ranking of New York City's gross metro product among international economies rose from 21st in 1990 to 14th last year; its economy is now ranked ahead of Australia's. The economy of the Washington, D.C. metro area ranks 27th, up from 35th in 1990, and ahead of Austria and Hong Kong; the gross product of the Dallas metro area surpassed Denmark, Saudi Arabia, and Thailand on its rise from 47th to 35th. Denver's ranking increased from 77th to 60th, as it's GDP grew to exceed those of Malaysia and the Philippines.

Many other key indicators of the contribution of metro areas to the national economy have also increased steadily. Metro area employment in the financial services and transportation, communications, and utilities sectors, which are two of the nation's highest value-added industries, grew 1.3% and 2.0% annually, respectively, from 1990 to 2000. Metro area business services payrolls rose 6.8% annually. Following the national pattern, high-tech employment in metro areas declined from 1990 to 1993 in response to defense spending reductions. In the second half of the 1990s, high-tech employment surged 5.4% annually, lifting its ten-year growth rate to 2.6%. Metro area per capita income increased by 4.4% over the last decade, a gain of over $3,100. After accounting for inflation, this represented a real gain of 2.1% annually.

2 The Contribution of Metropolitan Areas to the National Economy

2.1 The Scope of Metro Area Economies

The size of metro area economies illustrates their importance to the nation. If they were counted as a single country, the gross product of the five largest U.S. metropolitan areas ($1.59 trillion) would rank fourth among the world's economies, trailing only the U.S. ($9.96 trillion), Japan ($4.6 trillion) and Germany ($1.87 trillion). The importance of metro area economies can also be illustrated by their size relative to the output of U.S. states. The gross product of the 10 largest U.S. metro areas exceeds the combined output of the 31 smallest states. Last year, the five largest metro areas produced more goods and services than California; $1.59 trillion compared with $1.3 trillion.

Within a particular state, a single metropolitan area often dominates the state's economy. For example, the Atlanta metro area provides 55% of Georgia's employment and 56% of

gross state product. In Minnesota, the Minneapolis-St. Paul metro area produces 66% of the state's output and employs 65% of the work force. In highly urbanized states, almost all economic activity occurs in metro areas. In Pennsylvania, 97% of employment and 98% of output is generated within metro areas.

2.2 Employment and Output

As previously noted, most of the economic activity in the United States occurs within metro area cities and counties. A total of 110.8 million workers were employed in metro areas in 2000, or 84.0% of national employment. The total value of goods and services produced in metro areas last year was $8.476 trillion, 85% of U.S. gross domestic product. Metro areas, though geographically smaller, contribute much more to the national economy than non-metro areas. The metro area percentages of national employment and gross domestic product both exceed metro area shares of population and land area, highlighting the geographic concentration of economic activity within urban and suburban areas.

This geographic concentration of companies and people is one of the main reasons metro areas are able to make a disproportionately large contribution to the national economy. Close proximity between producers and consumers reduces the costs of business operations, allowing more goods and services to be produced per person and per acre of land.

Table 1 - Most Economic Activity Occurs in Metro Areas

Shares of U.S. Economy (2000)		Metro Areas	Rest of United States	United States
Size	Population (Millions)	226	55	281
	Percentage	80%	20%	
	Land Area (Square Miles, 000s)	719	2,873	3,592
	Percentage	20%	80%	
Jobs & Output	Employment (Millions)	111	21	131
	Percentage	84%	16%	
	Gross Domestic Product (Billions)	$8,476	$1,501	$9,977
	Percentage	85%	15%	
High Value Added Employment Sectors	Financial Services (Thousands)	6,882	720	7,602
	Percentage	91%	9%	
	Transportation & Utilities (Thousands)	6,096	928	7,024
	Percentage	87%	13%	

The clustering of two of the nation's highest value added sectors in urban locations also magnifies the metro area contribution to the national economy. In 2000, 91% of financial services employment and 87% of transportation, communications, and utilities sector employment was located within metropolitan areas. The financial services sector had the

highest level of output per employee last year, $257,000. Financial services companies choose to locate in metro areas for proximity to major securities and commodity markets and access to highly skilled workers. Companies maximize the efficiency of their transportation and communications networks by locating hubs and distribution centers in metro areas, taking advantage of extensive road, rail, shipping, and communications infrastructure.

From 1990 to 2000, most of the economic gains made in the United States were generated within cities and counties in metro areas. Of the 22.2 million jobs created in the U.S. over that period, 18.7 million, or 84%, were created in metropolitan areas. The contribution of metro areas to gross domestic product, meanwhile, increased by nearly $3.7 trillion in the last decade, representing 86% of the national gain.

Table 2 - Most Economic Gains Were Made in Metro Areas

Additions to U.S. Economy (1990 to 2000)		Metro Areas	Rest of United States	United States
Size	Population (Millions)	28	5	33
	Percentage	84%	16%	
Jobs & Output	Employment (Millions)	18.7	3.5	22.2
	Percentage	84%	16%	
	Gross Domestic Product	$3,664	$606	$4,270
	Percentage	86%	14%	
High Value Added Employment Sectors	Financial Services (Thousands)	804	106	910
	Percentage	88%	12%	
	Transportation & Utilities (Thousands)	1,116	124	1,240
	Percentage	90%	10%	

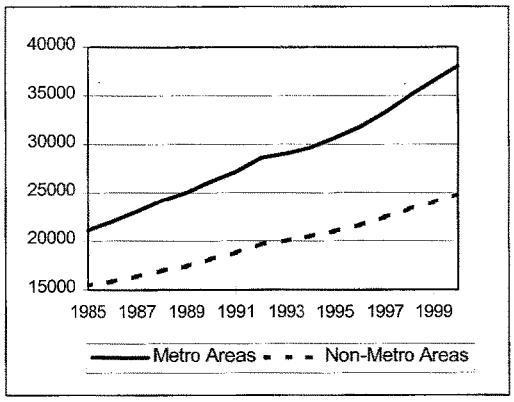
2.3 Income Creation

Most of the nation's labor income is also generated by metro area economies. In 2000, metro area workers earned $4.22 trillion in wages and salaries, while non-metro area workers earned $554 billion. Metro area economies also create more income per person than non-metro areas. Last year, the average metro area worker collected $38,000 in wages and benefits, while the average non-metro area worker earned $24,800, a difference of $13,200 per worker. The gap between metro and non-metro area workers has grown consistently since 1985, when the difference between metro area and non-metro area earnings was only $4,600.

In most labor markets, earnings are directly related to labor productivity--workers that are more productive receive higher wages and benefits. Figure 2, therefore, provides an indirect measure of the higher labor productivity in cities and counties within metro areas.

Metro area workers are able to produce more goods and services than non-metro area workers because of the clustering of specialized industries within urban areas, access to superior training and educational facilities, and a greater degree of knowledge-transfer and interaction between companies.

Figure 2 - Metro Area Workers Earn More Than Non-Metro Area Workers



2.4 Generating New Industries

With few exceptions[1], most major industries in the United States started in cities, including automobile manufacturing (Detroit), television broadcasting (New York), and personal computer manufacturing (San Jose). Metro areas provide new industries with crucial amenities--a diverse and ample supply of labor, financial and physical capital, access to national and international markets, a local base of technical knowledge--that are essential for their initial development and eventual success. As an industry matures, technological advances often allow companies within that industry to move to non-urban locations. As a consequence, newer, faster-growing industries tend to cluster within metro areas, while older, slower-growing industries are less tied to urban locations.

Table 3 shows that two of the fastest-growing segments of the U.S. economy, high-tech and business services, are almost entirely concentrated within metro areas. These two

[1] The major exceptions are resource-extraction industries (e.g., forestry, coal mining, oil drilling) which are tied to the geographic location of a particular natural resource.

sectors of the economy contain some of the nation's newest and most innovative industries, including computer hardware, computer software, telecommunications equipment, optical instruments, Internet publishing, and management consulting. From 1990 to 2000, employment in high-tech industries grew 2.6% per year, while employment in the business services sector increased by a remarkable 6.8% per year.

Table 3 - Most High-Tech and Business Services Employment is Located in Metro Areas

Shares of U.S. Employment (2000)		Metro Areas	Rest of United States	United States
High Growth Employment Sectors	High-Tech (Thousands)	7,345	524	7,869
	Percentage	93%	7%	
	Business Services (Thousands)	9,140	642	9,783
	Percentage	93%	7%	

Over the past ten years, the majority of these new jobs in the high-tech and business services segments have been created in metro areas. Metro area business services employment increased by close to 4.4 million from 1990 to 2000, compared with an increase of only 312,000 outside of metro areas. Over the same period, almost 1.66 million jobs were created by high-tech companies in metro areas, while only 52,500 jobs were added outside of metro areas.

In the future, metro areas will play a larger and larger role in the national economy. The movement of people from rural to urban areas will continue unabated, providing a steady stream of labor, knowledge, and capital to the businesses located there.

Table 4 - Gross Product of Metro Areas

Nominal Gross Product (Billions, $Current)					
Metro Area	**1997**	**1998**	**1999**	**2000**	**Rank**
New York, NY	363.19	383.60	407.60	437.80	1
Los Angeles-L Beach, CA	303.09	321.03	339.45	363.70	2
Chicago, IL	283.03	299.81	314.30	332.80	3
Boston, MA	193.99	208.04	221.59	238.80	4
Washington, DC-MD-VA-WV	172.74	187.02	200.79	217.00	5
Philadelphia, PA-NJ	152.95	161.59	170.92	182.40	6
Houston, TX	139.74	148.86	159.13	177.50	7
Atlanta, GA	129.10	141.05	152.88	164.20	8
Dallas, TX	125.56	136.19	146.55	160.00	9
Detroit, MI	131.97	139.87	147.32	156.30	10
Orange Co, CA	101.15	110.82	119.67	130.00	11
Minneapolis-St. Paul, MN-WI	99.98	105.98	113.07	121.30	12
Seattle-Bellevue-Everett, WA	91.51	101.92	108.02	115.00	13
Phoenix-Mesa, AZ	87.93	96.33	104.45	114.20	14
San Francisco, CA	88.59	94.49	99.54	107.30	15
Nassau-Suffolk, NY	86.96	92.10	99.81	106.80	16
San Diego, CA	81.22	88.67	96.46	104.60	17
Newark, NJ	81.03	84.89	90.44	96.30	18
Baltimore, MD	80.89	85.15	90.38	96.20	19
Oakland, CA	74.44	78.95	84.67	92.10	20
Denver, CO	71.08	77.96	83.93	91.10	21
St. Louis, MO-IL	77.09	80.74	84.76	89.60	22
San Jose, CA	67.81	72.51	76.78	85.40	23
Riverside-San Bernardino, CA	64.14	69.16	76.41	84.10	24
Tampa-St Petersb-Clrwater, FL	64.93	70.19	75.57	82.20	25
Cleveland-Lorain-Elyria, OH	69.01	72.27	76.27	80.80	26
Pittsburgh, PA	68.08	71.62	75.81	80.70	27
N Haven-BrPt-Stmfd-Dbry-Wtrbry, CT	63.83	67.50	71.87	76.80	28
Miami, FL	60.78	63.55	66.68	71.60	29
Portland-Vancouver, OR-WA	59.73	63.81	66.82	71.50	30
Kansas City, MO-KS	53.66	57.39	60.82	64.80	31
Hartford, CT	54.57	57.45	60.37	64.30	32
Middlesex-Somerset-Hunterdon, NJ	51.75	54.18	58.57	63.60	33
Sacramento, CA	49.23	53.97	58.94	63.10	34
Fort Worth-Arlington, TX	49.03	53.20	57.50	63.00	35
Charlotte-Gastonia-R Hill, NC-SC	47.73	51.81	56.39	61.30	36
Columbus, OH	50.30	53.51	57.04	60.70	37
Orlando, FL	46.77	51.12	55.82	59.50	38
Cincinnati, OH-KY-IN	50.39	53.22	55.99	59.40	39

Nominal Gross Product (Billions, $Current)					
Metro Area	**1997**	**1998**	**1999**	**2000**	**Rank**
Bergen-Passaic, NJ	50.55	53.60	56.50	59.30	40
Indianapolis, IN	47.38	50.59	53.81	57.70	41
Milwaukee-Waukesha, WI	46.86	49.29	51.95	54.80	42
Las Vegas, NV-AZ	41.05	44.69	49.45	54.60	43
San Antonio, TX	42.92	46.03	49.70	53.70	44
Norfolk-Va Beach-Newport News, VA-NC	42.75	46.16	48.66	51.70	45
Austin-San Marcos, TX	36.11	39.73	43.47	48.20	46
Buffalo-Niagara Falls, NY	40.85	42.63	45.21	47.80	47
Fort Lauderdale, FL	38.23	40.55	43.13	46.70	48
New Orleans, LA	40.79	41.08	42.66	46.50	49
Salt Lake City-Ogden, UT	38.12	40.65	43.22	46.40	50
Greensboro-W-Salem-High Point,NC	38.65	41.23	43.55	46.30	51
Rochester, NY	38.66	40.58	42.89	45.70	52
Richmond-Petersburg, VA	37.24	40.03	42.64	45.70	53
Nashville, TN	37.14	39.97	42.48	45.20	54
Raleigh-Durham-Chapel Hill, NC	35.17	38.23	41.16	44.30	55
Jacksonville, FL	34.82	37.13	39.62	43.00	56
Gr Rapids-Muskegon-Holland, MI	34.92	37.31	39.51	42.30	57
Memphis, TN-AR-MS	32.93	34.78	36.77	38.90	58
Louisville, KY-IN	31.55	33.62	35.63	38.70	59
Albany-Schenectady-Troy, NY	31.92	33.63	35.62	37.80	60
W Palm Beach-Boca Raton, FL	26.42	28.59	30.42	33.20	61
Honolulu, HI	29.68	30.27	31.24	33.00	62
Monmouth-Ocean, NJ	27.47	28.71	30.71	33.00	63
Providence-Warwick, RI	27.20	28.41	30.18	32.50	64
Oklahoma City, OK	26.88	28.08	29.88	32.30	65
Birmingham, AL	27.02	28.44	30.22	32.00	66
Wilmington-Newark, DE	25.24	27.43	29.30	31.40	67
Dayton-Springfield, OH	27.58	28.64	29.67	31.20	68
Manchester-Nashua, NH	23.85	25.94	27.88	30.20	69
Syracuse, NY	25.41	26.71	28.41	30.10	70
Greenville-Spartanburg-Anderson, SC	24.90	26.26	27.56	29.90	71
Jersey City, NJ	22.49	23.55	25.28	28.10	72
Harrisburg-Lebanon-Carlisle, PA	23.28	24.32	25.36	27.10	73
Fresno, CA	21.69	22.67	24.39	26.30	74
Omaha, NE-IA	21.95	23.11	24.64	26.20	75
Tulsa, OK	21.30	22.59	23.75	25.70	76
Albuquerque, NM	21.51	22.14	23.54	25.60	77
Ventura, CA	18.73	20.27	22.30	24.50	78
Tucson, AZ	18.02	19.24	20.80	22.90	79
Akron, OH	18.75	19.52	20.61	21.90	80
Knoxville, TN	17.98	19.13	20.24	21.50	81
Toledo, OH	18.14	18.97	20.06	21.20	82

Nominal Gross Product (Billions, $Current)					
Metro Area	**1997**	**1998**	**1999**	**2000**	**Rank**
Springfield, MA	17.33	18.38	19.53	20.90	83
Allentown-Bethlehem-Easton, PA	17.08	18.06	19.20	20.60	84
Scranton-Wilkes-Barre-Hazelton, PA	17.55	18.28	19.14	20.60	85
Santa Rosa, CA	15.30	17.14	18.27	20.50	86
Baton Rouge, LA	16.90	17.89	18.86	20.40	87
Des Moines, IA	15.69	16.90	18.18	19.10	88
Ann Arbor, MI	15.88	16.87	17.98	19.10	89
Columbia, SC	16.28	17.28	18.19	19.10	90
Tacoma, WA	15.63	16.99	17.92	19.00	91
Bakersfield, CA	15.18	15.74	16.93	18.90	92
Fort Wayne, IN	15.68	16.61	17.46	18.60	93
El Paso, TX	15.87	16.87	17.57	18.60	94
Trenton, NJ	15.51	16.18	17.42	18.50	95
Little Rock-N. L.Rock, AR	15.07	16.09	17.23	18.40	96
Madison, WI	15.73	16.50	17.40	18.40	97
Lafayette, LA	14.39	14.52	14.80	18.20	98
Lexington, KY	14.48	15.58	16.66	17.80	99
Colorado Springs, CO	13.85	15.10	16.27	17.60	100
Wichita, KS	15.16	16.18	16.70	17.50	101
Chattanooga, TN-GA	14.29	15.31	16.36	17.50	102
Santa Barbara-Santa Maria-Lompoc, CA	13.58	14.65	15.49	17.20	103
Sarasota-Bradenton, FL	13.51	14.25	15.50	16.90	104
Lancaster, PA	13.77	14.38	15.32	16.50	105
Stockton-Lodi, CA	14.58	14.99	15.57	16.20	106
Youngstown-Warren, OH	13.08	13.75	14.83	16.20	107
Gary, IN	14.06	14.67	15.28	16.10	108
Lansing-East Lansing, MI	14.31	15.10	15.61	16.10	109
Kalamazoo-Battle Creek, MI	14.26	14.38	14.97	15.70	110
Atlantic-Cape May, NJ	13.08	13.67	14.72	15.70	111
Spokane, WA	12.90	13.87	14.54	15.40	112
Modesto, CA	11.28	12.45	13.33	15.00	113
Augusta-Aiken, GA-SC	11.86	12.70	13.85	14.80	114
Reno, NV	11.58	12.51	13.45	14.70	115
Charleston-N Charleston, SC	11.82	12.63	13.49	14.70	116
Vallejo-Fairfield-Napa, CA	11.08	11.90	13.14	14.50	117
Boise City, ID	10.85	11.94	12.97	14.40	118
Rockford, IL	12.22	12.82	13.38	14.30	119
Jackson, MS	12.41	13.12	13.73	14.30	120
Mobile, AL	12.01	12.63	13.32	14.00	121
Johnson City-Kingspt-Bristol, TN-VA	12.09	12.43	13.07	13.90	122
Salinas, CA	10.85	11.68	12.42	13.80	123
Appleton-Oshkosh-Neenah, WI	11.13	11.72	12.53	13.50	124
Peoria-Pekin, IL	11.37	12.06	12.57	13.30	125

Nominal Gross Product (Billions, $Current)					
Metro Area	**1997**	**1998**	**1999**	**2000**	**Rank**
Lakeland-Winter Haven, FL	10.97	11.37	12.08	13.00	126
Davenport-Moline-Rock Isld, IA-IL	10.29	11.25	12.04	13.00	127
Reading, PA	10.98	11.72	12.24	13.00	128
Anchorage, AK	11.02	11.64	12.21	12.80	129
Hickory-Morganton, NC	10.52	10.73	11.28	12.80	130
Saginaw-Bay City-Midland, MI	11.24	11.65	12.10	12.70	131
Canton-Massillon, OH	10.77	11.40	11.96	12.70	132
Corpus Christi, TX	10.24	11.09	11.80	12.60	133
Roanoke, VA	10.43	10.90	11.49	12.60	134
York, PA	10.56	10.90	11.57	12.50	135
Beaumont-Port Arthur, TX	10.39	11.00	11.54	12.40	136
Shreveport-Bossier City, LA	10.77	10.90	11.28	12.30	137
Odessa-Midland, TX	9.73	9.54	9.99	12.30	138
Boulder-Longmont, CO	9.70	10.43	11.14	12.00	139
Melbourne-Titusville-Palm Bay, FL	9.85	10.49	11.16	12.00	140
Macon, GA	9.39	10.32	11.08	12.00	141
Portland, ME	9.57	10.07	11.00	12.00	142
Utica-Rome, NY	9.81	10.47	11.19	11.90	143
Springfield, IL	9.71	10.40	10.88	11.40	144
Fort Myers-Cape Coral, FL	11.04	11.06	11.22	11.30	145
Flint, MI	8.93	9.78	10.53	11.30	146
Newburgh, NY-PA	8.82	9.53	10.23	10.90	147
Springfield, MO	8.71	9.33	9.90	10.80	148
McAllen-Edinburg-Mission, TX	9.12	9.62	10.17	10.80	149
Huntsville, AL	8.94	9.50	9.98	10.60	150
Visalia-Tulare-Porterville, CA	8.94	9.45	9.99	10.50	151
Pensacola, FL	8.57	9.11	9.75	10.50	152
Savannah, GA	8.68	9.22	9.81	10.50	153
Evansville-Henderson, IN-KY	8.22	8.92	9.46	10.50	154
Montgomery, AL	8.58	9.22	9.74	10.40	155
Daytona Beach, FL	8.70	9.34	9.83	10.40	156
Eugene-Springfield, OR	8.48	9.03	9.65	10.40	157
New London-Norwich, CT	8.76	9.14	9.73	10.30	158
Tallahassee, FL	8.53	9.08	9.59	10.20	159
S L Obispo-Atascadero-Paso Robles, CA	7.87	8.55	9.07	10.10	160
Green Bay, WI	8.10	8.68	9.29	10.00	161
Binghamton, NY	8.22	8.70	9.26	9.90	162
Salem, OR	8.18	8.67	9.24	9.90	163
Columbus, GA-AL	8.27	8.58	9.12	9.80	164
Erie, PA	7.94	8.62	9.13	9.80	165
Lincoln, NE	7.93	8.50	9.01	9.60	166
Santa Cruz-Watsonville, CA	7.35	8.09	8.56	9.50	167
Dutchess County, NY	7.79	8.24	8.86	9.50	168

Nominal Gross Product (Billions, $Current)					
Metro Area	**1997**	**1998**	**1999**	**2000**	**Rank**
Biloxi-Gulfport-Pascagoula, MS	7.74	8.47	9.01	9.40	169
Fayetteville-Springdale-Rogers, AR	7.32	7.78	8.36	9.00	170
Yolo, CA	7.21	7.88	8.38	8.90	171
Elkhart-Goshen, IN	6.95	7.54	7.98	8.90	172
Houma, LA	7.09	7.62	8.03	8.60	173
Hamilton-Middletown, OH	6.97	6.95	7.09	8.60	174
South Bend, IN	6.89	7.19	7.53	8.50	175
Longview-Marshall, TX	7.24	7.77	8.18	8.50	176
Lubbock, TX	7.15	7.62	7.98	8.50	177
Lynchburg, VA	6.80	7.43	7.92	8.50	178
Charleston, WV	7.06	7.41	7.91	8.40	179
Fort Collins-Loveland, CO	6.45	7.12	7.68	8.30	180
Provo-Orem, UT	6.63	7.17	7.72	8.30	181
Bloomington-Normal, IL	6.44	7.39	7.76	8.20	182
Duluth-Superior, MN-WI	6.66	7.07	7.52	8.20	183
Sioux Falls, SD	6.10	6.57	7.35	8.00	184
Waco, TX	6.55	6.95	7.31	7.80	185
Gainesville, FL	6.25	6.78	7.21	7.70	186
Cedar Rapids, IA	6.37	6.92	7.27	7.70	187
Wilmington, NC	6.46	6.88	7.28	7.70	188
Huntington-Ashland, WV-KY-OH	6.63	6.82	7.16	7.60	189
Chico-Paradise, CA	6.24	6.61	6.96	7.50	190
Asheville, NC	6.32	6.75	7.09	7.50	191
Amarillo, TX	6.22	6.64	6.98	7.50	192
Brownsv-Harlingen-San Benito, TX	5.96	6.42	6.77	7.50	193
Killeen-Temple, TX	5.97	6.39	6.73	7.30	194
Galveston-Texas City, TX	5.93	6.32	6.67	7.20	195
Fayetteville, NC	5.98	6.45	6.73	7.10	196
Burlington, VT	5.75	6.05	6.50	7.00	197
Myrtle Beach, SC	5.30	5.79	6.33	6.90	198
Naples, FL	5.14	5.69	6.25	6.80	199
Barnstable-Yarmouth, MA	5.58	5.84	6.15	6.80	200
Tyler, TX	5.43	5.76	6.27	6.80	201
Fort Pierce-Port St. Lucie, FL	5.35	5.78	6.21	6.70	202
Johnstown, PA	5.66	5.83	6.18	6.70	203
Laredo, TX	5.36	5.49	5.81	6.60	204
Redding, CA	5.61	5.81	6.13	6.50	205
Topeka, KS	5.20	5.55	5.86	6.50	206
Olympia, WA	5.22	5.63	5.97	6.40	207
Fort Smith, AR-OK	5.00	5.45	5.86	6.30	208
Charlottesville, VA	5.27	5.51	5.84	6.30	209
Lake Charles, LA	5.43	5.54	5.72	6.20	210
Brazoria, TX	5.17	5.52	5.83	6.20	211

Nominal Gross Product (Billions, $Current)					
Metro Area	**1997**	**1998**	**1999**	**2000**	**Rank**
Richland-Kennewick-Pasco, WA	5.30	5.48	5.76	6.20	212
Yakima, WA	5.09	5.29	5.57	6.20	213
Merced, CA	4.76	5.11	5.44	6.10	214
St. Cloud, MN	4.91	5.27	5.59	6.00	215
Ocala, FL	4.99	5.34	5.65	5.90	216
Lafayette, IN	4.62	5.10	5.49	5.90	217
Fargo-Moorhead, ND-MN	4.88	5.25	5.52	5.80	218
Champaign-Urbana, IL	4.91	5.17	5.41	5.70	219
Mansfield, OH	5.02	5.15	5.40	5.70	220
Vineland-Millville-Bridgeton, NJ	4.69	4.86	5.19	5.60	221
Joplin, MO	4.68	4.95	5.19	5.50	222
Bremerton, WA	4.60	4.83	5.12	5.50	223
Athens, GA	4.35	4.69	5.01	5.40	224
Lima, OH	4.62	4.83	5.06	5.40	225
Bellingham, WA	4.33	4.71	5.00	5.40	226
Benton Harbor, MI	4.25	4.64	4.90	5.30	227
Rochester, MN	4.26	4.69	5.00	5.30	228
Bryan-College Station, TX	4.72	4.84	5.03	5.30	229
Racine, WI	4.39	4.60	4.91	5.30	230
Greeley, CO	3.89	4.32	4.71	5.20	231
Fort Walton Beach, FL	4.23	4.52	4.82	5.10	232
Medford-Ashford, OR	4.17	4.46	4.74	5.10	233
Tuscaloosa, AL	4.21	4.46	4.72	5.00	234
Monroe, LA	4.28	4.48	4.67	5.00	235
Pittsfield, MA	4.12	4.39	4.66	5.00	236
Columbia, MO	4.22	4.43	4.71	5.00	237
Jamestown, NY	4.06	4.28	4.58	4.90	238
Wichita Falls, TX	4.11	4.22	4.42	4.90	239
Hagerstown, MD	4.19	4.48	4.73	4.80	240
Eau Claire, WI	3.96	4.19	4.47	4.80	241
Wausau, WI	3.94	4.21	4.49	4.80	242
Rocky Mount, NC	3.86	4.13	4.40	4.70	243
Florence, SC	4.04	4.25	4.43	4.70	244
Albany, GA	3.84	4.06	4.29	4.60	245
Abilene, TX	3.90	3.93	4.13	4.60	246
Panama City, FL	3.72	3.98	4.25	4.50	247
Decatur, IL	3.96	4.14	4.28	4.50	248
Santa Fe, NM	3.98	4.08	4.28	4.50	249
Glens Falls, NY	3.84	3.92	4.19	4.50	250
Clarksville-Hopkinsville, TN-KY	3.74	3.98	4.21	4.50	251
Parkersburg-Marietta, WV-OH	3.65	3.95	4.20	4.50	252
Janesville-Beloit, WI	3.88	4.07	4.28	4.50	253
La Crosse, WI-MN	3.69	3.90	4.18	4.50	254

Nominal Gross Product (Billions, $Current)					
Metro Area	**1997**	**1998**	**1999**	**2000**	**Rank**
Waterloo-Cedar Falls, IA	3.87	4.03	4.20	4.40	255
Jackson, MI	3.71	3.85	4.10	4.40	256
State College, PA	3.80	3.99	4.16	4.40	257
Bangor, ME	3.53	3.74	4.00	4.30	258
Pueblo, CO	3.60	3.77	3.96	4.20	259
Terre Haute, IN	3.55	3.70	3.92	4.20	260
Greenville, NC	3.61	3.81	4.01	4.20	261
Altoona, PA	3.47	3.72	3.94	4.20	262
Wheeling, WV-OH	3.30	3.60	3.86	4.20	263
Dothan, AL	3.58	3.76	3.94	4.10	264
Sioux City, IA-NE	3.38	3.60	3.84	4.10	265
Williamsport, PA	3.43	3.58	3.80	4.10	266
Sheboygan, WI	3.55	3.67	3.86	4.10	267
Jackson, TN	3.34	3.55	3.78	4.00	268
Grand Junction, CO	3.17	3.40	3.60	3.80	269
Dover, DE	3.17	3.40	3.63	3.80	270
Bloomington, IN	3.26	3.41	3.60	3.80	271
Billings, MT	2.93	3.19	3.45	3.80	272
Decatur, AL	3.14	3.27	3.45	3.70	273
Flagstaff, AZ-UT	2.94	3.17	3.36	3.70	274
Yuba City, CA	3.05	3.26	3.40	3.70	275
Kokomo, IN	3.06	3.24	3.46	3.70	276
Elmira, NY	3.10	3.29	3.50	3.70	277
San Angelo, TX	3.12	3.34	3.49	3.70	278
Texarkana, AR-TX	3.00	3.18	3.34	3.60	279
Muncie, IN	3.06	3.26	3.43	3.60	280
Alexandria, LA	3.07	3.20	3.36	3.60	281
Las Cruces, NM	3.11	3.26	3.41	3.60	282
Sharon, PA	2.92	3.13	3.32	3.60	283
Sherman-Denison, TX	3.10	3.21	3.37	3.60	284
Danville, VA	3.03	3.22	3.35	3.60	285
Iowa City, IA	3.00	3.23	3.34	3.50	286
Steubenville-Weirton, OH-WV	2.92	3.15	3.33	3.50	287
Florence, AL	3.12	3.12	3.26	3.40	288
Victoria, TX	2.68	2.76	2.91	3.30	289
Kankakee, IL	2.81	2.92	3.05	3.20	290
Kenosha, WI	2.61	2.80	2.99	3.20	291
Dubuque, IA	2.74	2.83	2.96	3.10	292
Anniston, AL	2.44	2.59	2.77	3.00	293
Owensboro, KY	2.30	2.59	2.78	3.00	294
Lewiston-Auburn, ME	2.61	2.74	2.86	3.00	295
Hattiesburg, MS	2.51	2.62	2.80	3.00	296
St. Joseph, MO	2.59	2.70	2.83	3.00	297

Nominal Gross Product (Billions, $Current)					
Metro Area	**1997**	**1998**	**1999**	**2000**	**Rank**
Rapid City, SD	2.45	2.60	2.76	3.00	298
Goldsboro, NC	2.53	2.68	2.79	2.90	299
Bismarck, ND	2.26	2.26	2.42	2.90	300
Casper, WY	2.36	2.54	2.69	2.90	301
Cumberland, MD-WV	2.30	2.45	2.61	2.80	302
Missoula, MT	2.49	2.62	2.75	2.80	303
Grand Forks, ND-MN	2.29	2.41	2.58	2.80	304
Sumter, SC	2.36	2.49	2.62	2.80	305
Yuma, AZ	2.32	2.44	2.57	2.70	306
Lawrence, KS	2.30	2.41	2.52	2.70	307
Corvallis, OR	2.15	2.30	2.42	2.70	308
Cheyenne, WY	2.20	2.35	2.47	2.60	309
Auburn-Opelika, AL	2.14	2.28	2.38	2.50	310
Gadsden, AL	2.18	2.24	2.36	2.50	311
Jacksonville, NC	2.12	2.22	2.33	2.50	312
Punta Gorda, FL	1.94	2.10	2.27	2.40	313
Lawton, OK	2.10	2.17	2.26	2.40	314
Jonesboro, AR	1.89	2.01	2.12	2.30	315
Pine Bluff, AR	1.79	1.86	1.95	2.10	316
Great Falls, MT	1.65	1.73	1.84	2.00	317
Pocatello, ID	1.58	1.66	1.78	1.90	318
Enid, OK	1.47	1.51	1.58	1.70	319

Table 5 – Gross Product of Countries and Metro Areas

Gross Product, 2000 (US $ Billions, Current)		
Rank	Country or ***Metro Area***	Gross
1	United States	9963.00
2	Japan	4614.00
3	Germany	1873.00
4	United Kingdom	1410.00
5	France	1286.00
6	China	1104.00
7	Italy	1074.00
8	Canada	699.00
9	Brazil	665.00
10	Mexico	578.00
11	Spain	557.00
12	India	510.00
13	South Korea	480.00
14	***New York, NY***	437.80
15	Australia	428.00
16	***Los Angeles-Long Beach, CA***	363.70
17	Netherlands	360.00
18	***Chicago, IL***	332.80
19	Taiwan	323.00
20	Argentina	284.00
21	Russia	247.00
22	Switzerland	241.30
23	***Boston, MA***	238.80
24	Belgium	227.00
25	Sweden	224.10
26	Turkey	217.60
27	***Washington, DC-MD-VA-WV***	217.00
28	Austria	184.90
29	***Philadelphia, PA-NJ***	182.40
30	***Houston, TX***	177.50
31	Hong Kong	164.60
32	***Atlanta, GA***	164.20
33	Norway	164.00
34	Poland	163.00
35	***Dallas, TX***	160.00
36	Denmark	158.00
37	***Detroit, MI***	156.30
38	Indonesia	147.60
39	Saudi Arabia	145.30
40	South Africa	132.30
41	***Orange County, CA***	130.00
42	Thailand	128.20

Gross Product, 2000 (US $ Billions, Current)		
Rank	Country or ***Metro Area***	Gross
43	***Minneapolis-St.Paul, MN-WI***	121.30
44	Finland	118.00
45	***Seattle-Bellevue-Everett, WA***	115.00
46	***Phoenix-Mesa, AZ***	114.20
47	Greece	110.90
48	Israel	108.00
49	***San Francisco, CA***	107.30
50	***Nassau-Suffolk, NY***	106.80
51	***San Diego, CA***	104.60
52	Venezuela	102.90
53	Portugal	100.50
54	***Newark, NJ***	96.30
55	***Baltimore, MD***	96.20
56	Ireland	95.10
57	Singapore	93.70
58	***Oakland, CA***	92.10
59	Egypt	91.50
60	***Denver, CO***	91.10
61	Colombia	90.00
62	***St. Louis, MO-IL***	89.60
63	Malaysia	88.80
64	***San Jose, CA***	85.40
65	***Riverside-San Bernardino, CA***	84.10
66	***Tampa-St Petersburg-Clearwater, FL***	82.20
67	***Cleveland-Lorain-Elyria, OH***	80.80
68	***Pittsburgh, PA***	80.70
69	Philippines	78.00
70	***New Haven, CT***	76.80
71	Chile	73.00
72	***Miami, FL***	71.60
73	***Portland-Vancouver, OR-WA***	71.50
74	Iran	67.10
75	Puerto Rico	65.30
76	***Kansas City, MO-KS***	64.80
77	***Hartford, CT***	64.30
78	***Middlesex-Somerset-Hunterdon, NJ***	63.60
79	***Sacramento, CA***	63.10
80	***Fort Worth-Arlington, TX***	63.00
81	Pakistan	62.70
82	Peru	62.70
83	***Charlotte-Gastonia-RHill, NC-SC***	61.30
84	***Columbus, OH***	60.70
85	United Arab	60.70

Gross Product, 2000 (US $ Billions, Current)		
Rank	Country or ***Metro Area***	Gross
86	***Orlando, FL***	59.50
87	***Cincinnati, OH-KY-IN***	59.40
88	***Bergen-Passaic, NJ***	59.30
89	***Indianapolis, IN***	57.70
90	Nigeria	54.90
91	***Milwaukee-Waukesha, WI***	54.80
92	***Las Vegas,NV-AZ***	54.60
93	***San Antonio,TX***	53.70
94	Algeria	52.80
95	New B131Zealand	52.10
96	***Norfolk-Virginia Beach-Newport News,VA-NC***	51.70
97	Czech	50.80
98	***Austin-San Marcos,TX***	48.20
99	***Buffalo-Niagara Falls,NY***	47.80
100	Hungary	47.40
101	***Fort Lauderdale,FL***	46.70
102	***New Orleans,LA***	46.50
103	***Salt Lake City-Ogden,UT***	46.40
104	***Greensboro--Winston-Salem--HighPoint,NC***	46.30
105	***Rochester,NY***	45.70
106	***Richmond-Petersburg,VA***	45.70
107	***Nashville,TN***	45.20
108	***Raleigh-Durham-ChapelHill, NC***	44.30
109	***Jacksonville, FL***	43.00
110	***GrRapids-Muskegon-Holland, MI***	42.30
111	***Memphis, TN-AR-MS***	38.90
112	***Louisville, KY-IN***	38.70
113	Bangladesh	38.50
114	Kuwait	38.05
115	***Albany-Schenectady-Troy, NY***	37.80
116	Syria	35.53
117	Morocco	34.80
118	***WPalmBeach-BocaRaton, FL***	33.20
119	***Honolulu, HI***	33.00
120	***Monmouth-Ocean, NJ***	33.00
121	Romania	33.00
122	***Providence-Warwick, RI***	32.50
123	***OklahomaCity, OK***	32.30
124	***Birmingham, AL***	32.00
125	Ukraine	31.70
126	***Wilmington-Newark, DE***	31.40
127	***Dayton-Springfield, OH***	31.20
128	Vietnam	30.60

Gross Product, 2000 (US $ Billions, Current)		
Rank	Country or ***Metro Area***	Gross
129	***Manchester-Nashua, NH***	30.20
130	***Syracuse, NY***	30.10
131	***Greenville-Spartanburg-Anderson, SC***	29.90
132	***Jersey City, NJ***	28.10
133	***Harrisburg-Lebanon-Carlisle, PA***	27.10
134	***Fresno, CA***	26.30
135	***Omaha, NE-IA***	26.20
136	***Tulsa, OK***	25.70
137	***Albuquerque, NM***	25.60
138	Iraq	25.50
139	***Ventura, CA***	24.50
140	***Tucson, AZ***	22.90
141	***Akron, OH***	21.90
142	***Knoxville, TN***	21.50
143	***Toledo, OH***	21.20
144	***Springfield, MA***	20.90
145	***Allentown-Bethlehem-Easton, PA***	20.60
146	***Scranton-Wilkes-Barre-Hazelton, PA***	20.60
147	***Santa Rosa, CA***	20.50
148	Uruguay	20.49
149	***Baton Rouge, LA***	20.40
150	Slovakia	20.20
151	Tunisia	19.96
152	Dominican Republic	19.67
153	***DesMoines, IA***	19.10
154	***AnnArbor, MI***	19.10
155	***Columbia, SC***	19.10
156	Guatemala	19.05
157	***Tacoma, WA***	19.00
158	Croatia(Hrvatska)	19.00
159	***Bakersfield, CA***	18.90
160	Oman	18.82
161	***FortWayne, IN***	18.60
162	***ElPaso, TX***	18.60
163	***Trenton, NJ***	18.50
164	Slovenia	18.47
165	***LittleRock-N.L.Rock, AR***	18.40
166	***Madison, WI***	18.40
167	***Lafayette, LA***	18.20
168	Kazakhstan	18.20
169	Luxembourg	18.10
170	***Lexington, KY***	17.80
171	***ColoradoSprings, CO***	17.60

Gross Product, 2000 (US $ Billions, Current)		
Rank	Country or ***Metro Area***	Gross
172	***Wichita, KS***	17.50
173	***Chattanooga, TN-GA***	17.50
174	Lebanon	17.36
175	***SantaBarbara-SantaMaria-Lompoc, CA***	17.20
176	***Sarasota-Bradenton, FL***	16.90
177	***Lancaster, PA***	16.50
178	SriLanka	16.47
179	***Stockton-Lodi, CA***	16.20
180	***Youngstown-Warren, OH***	16.20
181	***Gary, IN***	16.10
182	***Lansing-EastLansing, MI***	16.10
183	CostaRica	16.02
184	***Kalamazoo-BattleCreek, MI***	15.70
185	***Atlantic-CapeMay, NJ***	15.70
186	***Spokane, WA***	15.40
187	***Modesto, CA***	15.00
188	***Augusta-Aiken, GA-SC***	14.80
189	***Reno, NV***	14.70
190	***Charleston-NCharleston, SC***	14.70
191	Qatar	14.58
192	***Vallejo-Fairfield-Napa, CA***	14.50
193	***BoiseCity, ID***	14.40
194	***Rockford, IL***	14.30
195	***Jackson, MS***	14.30
196	***Mobile, AL***	14.00
197	***JohnsonCity-Kingspt-Bristol, TN-VA***	13.90
198	***Salinas, CA***	13.80
199	***Appleton-Oshkosh-Neenah, WI***	13.50
200	***Peoria-Pekin, IL***	13.30
201	El Salvador	13.22
202	Ecuador	13.04
203	***Lakeland-WinterHaven, FL***	13.00
204	***Davenport-Moline-RockIsld, IA-IL***	13.00
205	***Reading, PA***	13.00
206	***Anchorage, AK***	12.80
207	***Hickory-Morganton, NC***	12.80
208	***Saginaw-BayCity-Midland, MI***	12.70
209	***Canton-Massillon, OH***	12.70
210	***CorpusChristi, TX***	12.60
211	***Roanoke, VA***	12.60
212	***York, PA***	12.50
213	***Beaumont-PortArthur, TX***	12.40
214	***Shreveport-BossierCity, LA***	12.30

Gross Product, 2000 (US $ Billions, Current)		
Rank	Country or *Metro Area*	Gross
215	***Odessa-Midland, TX***	12.30
216	Uzbekistan	12.30
217	Bulgaria	12.23
218	***Boulder-Longmont, CO***	12.00
219	***Melbourne-Titusville-PalmBay, FL***	12.00
220	***Macon, GA***	12.00
221	***Portland, ME***	12.00
222	***Utica-Rome, NY***	11.90
223	***Springfield, IL***	11.40
224	***FortMyers-CapeCoral, FL***	11.30
225	***Flint, MI***	11.30
226	Lithuania	11.23
227	Sudan	10.98
228	Coted'Ivoire	10.93
229	***Newburgh, NY-PA***	10.90
230	***Springfield, MO***	10.80
231	***McAllen-Edinburg-Mission, TX***	10.80
232	Belarus	10.78
233	***Huntsville, AL***	10.60
234	Kenya	10.60
235	***Visalia-Tulare-Porterville, CA***	10.50
236	***Pensacola, FL***	10.50
237	***Savannah, GA***	10.50
238	***Evansville-Henderson, IN-KY***	10.50
239	***Montgomery, AL***	10.40
240	***DaytonaBeach, FL***	10.40
241	***Eugene-Springfield, OR***	10.40
242	***NewLondon-Norwich, CT***	10.30
243	***Tallahassee, FL***	10.20
244	***SLObispo-Atascadero-PasoRobles, CA***	10.10
245	Cuba	10.10
246	***GreenBay, WI***	10.00
247	***Binghamton, NY***	9.90
248	***Salem, OR***	9.90
249	***Columbus, GA-AL***	9.80
250	***Erie, PA***	9.80
251	Cameroon	9.67
252	Myanmar	9.61
253	***Lincoln, NE***	9.60
254	***SantaCruz-Watsonville, CA***	9.50
255	***DutchessCounty, NY***	9.50
256	***Biloxi-Gulfport-Pascagoula, MS***	9.40
257	Tanzania	9.32

Gross Product, 2000 (US $ Billions, Current)		
Rank	Country or ***Metro Area***	Gross
258	Iceland	9.17
259	***Fayetteville-Springdale-Rogers, AR***	9.00
260	Cyprus	8.94
261	***Yolo, CA***	8.90
262	***Elkhart-Goshen, IN***	8.90
263	***Houma, LA***	8.60
264	***Hamilton-Middletown, OH***	8.60
265	Bolivia	8.54
266	***SouthBend, IN***	8.50
267	***Longview-Marshall, TX***	8.50
268	***Lubbock, TX***	8.50
269	***Lynchburg, VA***	8.50
270	***Charleston, WV***	8.40
271	***FortCollins-Loveland, CO***	8.30
272	***Provo-Orem, UT***	8.30
273	***Bloomington-Normal, IL***	8.20
274	***Duluth-Superior, MN-WI***	8.20
275	***SiouxFalls, SD***	8.00
276	Yemen(Unified)	7.96
277	***Waco, TX***	7.80
278	Jordan	7.75
279	***Gainesville, FL***	7.70
280	***CedarRapids, IA***	7.70
281	***Wilmington, NC***	7.70
282	Zimbabwe	7.61
283	***Huntington-Ashland, WV-KY-OH***	7.60
284	***Chico-Paradise, CA***	7.50
285	***Asheville, NC***	7.50
286	***Amarillo, TX***	7.50
287	***Brownsv-Harlingen-SanBenito, TX***	7.50
288	Paraguay	7.49
289	Libyan Arab Jamahiriya	7.47
290	Panama	7.34
291	***Killeen-Temple, TX***	7.30
292	Federal Republic of Yugoslavia	7.30
293	Trinidad & Tobago	7.28
294	***Galveston-TexasCity, TX***	7.20
295	Jamaica	7.18
296	Latvia	7.15
297	Bahrain	7.11
298	***Fayetteville, NC***	7.10
299	***Burlington, VT***	7.00
300	***Myrtle Beach, SC***	6.90

Gross Product, 2000 (US $ Billions, Current)		
Rank	Country or ***Metro Area***	Gross
301	***Naples, FL***	6.80
302	***Barnstable-Yarmouth, MA***	6.80
303	***Tyler, TX***	6.80
304	Ethiopia	6.80
305	***FortPierce-PortSt.Lucie, FL***	6.70
306	***Johnstown, PA***	6.70
307	***Laredo, TX***	6.60
308	***Redding, CA***	6.50
309	***Topeka, KS***	6.50
310	***Olympia, WA***	6.40
311	***FortSmith, AR-OK***	6.30
312	***Charlottesville, VA***	6.30
313	Ghana	6.30
314	***LakeCharles, LA***	6.20
315	***Brazoria, TX***	6.20
316	***Richland-Kennewick-Pasco, WA***	6.20
317	***Yakima, WA***	6.20
318	Uganda	6.20
319	***Merced, CA***	6.10
320	***St.Cloud, MN***	6.00
321	Honduras	5.93
322	***Ocala, FL***	5.90
323	***Lafayette, IN***	5.90
324	***Fargo-Moorhead, ND-MN***	5.80
325	***Champaign-Urbana, IL***	5.70
326	***Mansfield, OH***	5.70
327	***Vineland-Millville-Bridgeton, NJ***	5.60
328	***Joplin, MO***	5.50
329	***Bremerton, WA***	5.50
330	Nepal	5.42
331	***Athens, GA***	5.40
332	***Lima, OH***	5.40
333	***Bellingham, WA***	5.40
334	Botswana	5.36
335	***BentonHarbor, MI***	5.30
336	***Rochester, MN***	5.30
337	***Bryan-CollegeStation, TX***	5.30
338	***Racine, WI***	5.30
339	Brunei Darussalam	5.21
340	Gabon	5.21
341	***Greeley, CO***	5.20
342	***FortWaltonBeach, FL***	5.10
343	***Medford-Ashford, OR***	5.10

Gross Product, 2000 (US $ Billions, Current)		
Rank	Country or ***Metro Area***	Gross
344	***Tuscaloosa, AL***	5.00
345	***Monroe, LA***	5.00
346	***Pittsfield, MA***	5.00
347	***Columbia, MO***	5.00
348	WestBank and Gaza	4.94
349	Estonia	4.92
350	***Jamestown, NY***	4.90
351	***WichitaFalls, TX***	4.90
352	Azerbaijan	4.90
353	***Hagerstown, MD***	4.80
354	***EauClaire, WI***	4.80
355	***Wausau, WI***	4.80
356	***RockyMount, NC***	4.70
357	***Florence, SC***	4.70
358	***Albany, GA***	4.60
359	***Abilene, TX***	4.60
360	Mauritius	4.60
361	Senegal	4.53
362	***PanamaCity, FL***	4.50
363	***Decatur, IL***	4.50
364	***Santa Fe, NM***	4.50
365	***Glens Falls, NY***	4.50
366	***Clarksville-Hopkinsville, TN-KY***	4.50
367	***Parkersburg-Marietta, WV-OH***	4.50
368	***Janesville-Beloit, WI***	4.50
369	***LaCrosse, WI-MN***	4.50
370	Angola	4.43
371	***Waterloo-CedarFalls, IA***	4.40
372	***Jackson, MI***	4.40
373	***StateCollege, PA***	4.40
374	Turkmenistan	4.40
375	***Bangor, ME***	4.30
376	***Pueblo, CO***	4.20
377	***TerreHaute, IN***	4.20
378	***Greenville, NC***	4.20
379	***Altoona, PA***	4.20
380	***Wheeling, WV-OH***	4.20
381	Bahamas	4.19
382	Mozambique	4.17
383	***Dothan, AL***	4.10
384	***Sioux City, IA-NE***	4.10
385	***Williamsport, PA***	4.10
386	***Sheboygan, WI***	4.10

Gross Product, 2000 (US $ Billions, Current)		
Rank	Country or ***Metro Area***	Gross
387	***Jackson, TN***	4.00
388	Albania	3.89
389	***GrandJunction, CO***	3.80
390	***Dover, DE***	3.80
391	***Bloomington, IN***	3.80
392	***Billings, MT***	3.80
393	Madagascar	3.79
394	***Decatur, AL***	3.70
395	***Flagstaff, AZ-UT***	3.70
396	***YubaCity, CA***	3.70
397	***Kokomo, IN***	3.70
398	***Elmira, NY***	3.70
399	***San Angelo, TX***	3.70
400	PapuaNewGuinea	3.67
401	***Texarkana, AR-TX***	3.60
402	***Muncie, IN***	3.60
403	***Alexandria, LA***	3.60
404	***Las Cruces, NM***	3.60
405	***Sharon, PA***	3.60
406	***Sherman-Denison, TX***	3.60
407	***Danville, VA***	3.60
408	Malta	3.53
409	Namibia	3.51
410	***IowaCity, IA***	3.50
411	***Steubenville-Weirton, OH-WV***	3.50
412	Macedonia	3.41
413	***Florence, AL***	3.40
414	***Victoria, TX***	3.30
415	Congo, Dem.Repub.of	3.28
416	Guinea	3.21
417	***Kankakee, IL***	3.20
418	***Kenosha, WI***	3.20
419	Georgia	3.15
420	Cambodia	3.12
421	***Dubuque, IA***	3.10
422	Zambia	3.10
423	Haiti	3.09
424	***Anniston, AL***	3.00
425	***Owensboro, KY***	3.00
426	***Lewiston-Auburn, ME***	3.00
427	***Hattiesburg, MS***	3.00
428	***St.Joseph, MO***	3.00
429	***RapidCity, SD***	3.00

Gross Product, 2000 (US $ Billions, Current)		
Rank	Country or ***Metro Area***	Gross
430	Congo	2.92
431	***Goldsboro, NC***	2.90
432	***Bismarck, ND***	2.90
433	***Casper, WY***	2.90
434	***Cumberland, MD-WV***	2.80
435	***Missoula, MT***	2.80
436	***GrandForks, ND-MN***	2.80
437	***Sumter, SC***	2.80
438	***Yuma, AZ***	2.70
439	***Lawrence, KS***	2.70
440	***Corvallis, OR***	2.70
441	Barbados	2.69
442	Bermuda	2.67
443	***Cheyenne, WY***	2.60
444	***Auburn-Opelika, AL***	2.50
445	***Gadsden, AL***	2.50
446	***Jacksonville, NC***	2.50
447	Nicaragua	2.50
448	BurkinaFaso	2.44
449	***PuntaGorda, FL***	2.40
450	***Lawton, OK***	2.40
451	Mali	2.40
452	***Jonesboro, AR***	2.30
453	Benin	2.27
454	Liechtenstein	2.25
455	***PineBluff, AR***	2.10
456	NetherlandsAntilles	2.06
457	***GreatFalls, MT***	2.00
458	Malawi	1.99
459	Fiji	1.97
460	Aruba	1.96
461	Rwanda	1.95
462	Armenia	1.92
463	***Pocatello, ID***	1.90
464	***Enid, OK***	1.70
465	Somalia	1.67
466	Niger	1.59
467	Cayman Islands	1.59
468	Chad	1.47
469	Kyrgyzstan	1.30
470	Moldova	1.30
471	Togo	1.29
472	Afghanistan	1.27

Gross Product, 2000 (US $ Billions, Current)		
Rank	Country or ***Metro Area***	Gross
473	Swaziland	1.22
474	Laos	1.09
475	Mongolia	1.03
476	Equatorial Guinea	1.01
477	Tajikistan	1.01
478	Central African Republic	0.99
479	Lesotho	0.95
480	Mauritania	0.91
481	Burundi	0.77
482	Guyana	0.75
483	Eritrea	0.75
484	Belize	0.74
485	Saint Lucia	0.70
486	Antigua & Barbuda	0.69
487	Suriname	0.65
488	Seychelles	0.63
489	SierraLeone	0.59
490	Djibouti	0.56
491	CapeVerde	0.51
492	Bhutan	0.47
493	Gambia	0.45
494	Maldives	0.44
495	Grenada	0.42
496	Solomon Islands	0.39
497	Saint Kitts and Nevis	0.33
498	Saint Vincent and the Grenadines	0.33
499	Dominica	0.28
500	Guinea-Bissau	0.23
501	Vanuatu	0.23
502	Samoa	0.19
503	Comoros	0.18
504	Sao Tome and Principe	0.05

Table 6

The Gross Product of the Top 10 Metro areas in 2000 exceeds the combined output of the following 31 States.

Total Gross Metro Product
$2.43 trillion

- New York, NY
- Los Angeles-L Beach, CA
- Chicago, IL
- Boston, MA
- Washington, DC-MD-VA-WV
- Philadelphia, PA-NJ
- Houston, TX
- Atlanta, GA
- Dallas, TX
- Detroit, MI

Is greater than

>

Total Gross State Product
$2.15 trillion

- Vermont
- North Dakota
- Montana
- Wyoming
- South Dakota
- Alaska
- Rhode Island
- Idaho
- Maine
- Delaware
- Hawaii
- West Virginia
- New Hampshire
- New Mexico
- Nebraska
- D. C.
- Utah
- Mississippi
- Arkansas
- Nevada
- Kansas
- Oklahoma
- Iowa
- South Carolina
- Oregon
- Alabama
- Kentucky
- Louisiana
- Arizona
- Connecticut
- Colorado

Table 7 – Gross Product of Metro Areas

Nominal Gross Metro Product	1990	2000	Percent Change	Rank
(Billions, $Current)			(%)	
Las Vegas, NV-AZ	20.5	54.6	166.3	1
Austin-San Marcos, TX	18.8	48.2	156.4	2
Laredo, TX	2.7	6.6	144.4	3
Provo-Orem, UT	3.4	8.3	144.1	4
Boise City, ID	5.9	14.4	144.1	5
Phoenix-Mesa, AZ	47.3	114.2	141.4	6
Colorado Springs, CO	7.3	17.6	141.1	7
Myrtle Beach, SC	2.9	6.9	137.9	8
Fort Collins-Loveland, CO	3.5	8.3	137.1	9
Greeley, CO	2.2	5.2	136.4	10
Yolo, CA	3.9	8.9	128.2	11
Albuquerque, NM	11.3	25.6	126.5	12
Yuma, AZ	1.2	2.7	125.0	13
Corvallis, OR	1.2	2.7	125.0	14
Atlanta, GA	73.4	164.2	123.7	15
Grand Junction, CO	1.7	3.8	123.5	16
Sioux Falls, SD	3.6	8.0	122.2	17
Boulder-Longmont, CO	5.4	12.0	122.2	18
Salt Lake City-Ogden, UT	21.1	46.4	119.9	19
Fayetteville-Springdale-Rogers, AR	4.1	9.0	119.5	20
Denver, CO	41.8	91.1	117.9	21
Santa Rosa, CA	9.5	20.5	115.8	22
Raleigh-Durham-Chapel Hill, NC	20.7	44.3	114.0	23
Wilmington, NC	3.6	7.7	113.9	24
Green Bay, WI	4.7	10.0	112.8	25
Naples, FL	3.2	6.8	112.5	26
McAllen-Edinburg-Mission, TX	5.1	10.8	111.8	27
Orlando, FL	28.2	59.5	111.0	28
Jackson, TN	1.9	4.0	110.5	29
Pueblo, CO	2.0	4.2	110.0	30
Portland-Vancouver, OR-WA	34.1	71.5	109.7	31
Charlotte-Gastonia-R Hill, NC-SC	29.3	61.3	109.2	32
Killeen-Temple, TX	3.5	7.3	108.6	33
Tucson, AZ	11.0	22.9	108.2	34
San Antonio, TX	25.8	53.7	108.1	35
Nashville, TN	21.9	45.2	106.4	36
Dallas, TX	77.6	160.0	106.2	37
S L Obispo-Atascadero-Paso Robles, CA	4.9	10.1	106.1	38
Santa Fe, NM	2.2	4.5	104.5	39
Clarksville-Hopkinsville, TN-KY	2.2	4.5	104.5	40
Manchester-Nashua, NH	14.8	30.2	104.1	41
Medford-Ashford, OR	2.5	5.1	104.0	42

Nominal Gross Metro Product	1990	2000	Percent Change	Rank
(Billions, $Current)			(%)	
Bryan-College Station, TX	2.6	5.3	103.8	43
Ocala, FL	2.9	5.9	103.4	44
Salem, OR	4.9	9.9	102.0	45
Fort Worth-Arlington, TX	31.4	63.0	100.6	46
Athens, GA	2.7	5.4	100.0	47
Bloomington-Normal, IL	4.1	8.2	100.0	48
Columbia, MO	2.5	5.0	100.0	49
Springfield, MO	5.4	10.8	100.0	50
Las Cruces, NM	1.8	3.6	100.0	51
Eugene-Springfield, OR	5.2	10.4	100.0	52
Rapid City, SD	1.5	3.0	100.0	53
Bellingham, WA	2.7	5.4	100.0	54
Reno, NV	7.4	14.7	98.6	55
Gr Rapids-Muskegon-Holland, MI	21.4	42.3	97.7	56
Brownsv-Harlingen-San Benito, TX	3.8	7.5	97.4	57
Tampa-St Petersb-Clrwater, FL	41.7	82.2	97.1	58
Merced, CA	3.1	6.1	96.8	59
Sarasota-Bradenton, FL	8.6	16.9	96.5	60
Joplin, MO	2.8	5.5	96.4	61
Jacksonville, FL	21.9	43.0	96.3	62
Fort Walton Beach, FL	2.6	5.1	96.2	63
Columbus, GA-AL	5.0	9.8	96.0	64
Biloxi-Gulfport-Pascagoula, MS	4.8	9.4	95.8	65
Waco, TX	4.0	7.8	95.0	66
Victoria, TX	1.7	3.3	94.1	67
Olympia, WA	3.3	6.4	93.9	68
Knoxville, TN	11.1	21.5	93.7	69
St. Cloud, MN	3.1	6.0	93.5	70
Houston, TX	91.8	177.5	93.4	71
W Palm Beach-Boca Raton, FL	17.2	33.2	93.0	72
Lawrence, KS	1.4	2.7	92.9	73
Spokane, WA	8.0	15.4	92.5	74
Chico-Paradise, CA	3.9	7.5	92.3	75
Modesto, CA	7.8	15.0	92.3	76
Amarillo, TX	3.9	7.5	92.3	77
Eau Claire, WI	2.5	4.8	92.0	78
Wausau, WI	2.5	4.8	92.0	79
Jonesboro, AR	1.2	2.3	91.7	80
Wilmington-Newark, DE	16.4	31.4	91.5	81
Houma, LA	4.5	8.6	91.1	82
Hamilton-Middletown, OH	4.5	8.6	91.1	83
Greenville, NC	2.2	4.2	90.9	84
Fort Lauderdale, FL	24.5	46.7	90.6	85

Nominal Gross Metro Product	1990	2000	Percent Change	Rank
(Billions, $Current)			(%)	
Dover, DE	2.0	3.8	90.0	86
Pocatello, ID	1.0	1.9	90.0	87
Tacoma, WA	10.0	19.0	90.0	88
Lexington, KY	9.4	17.8	89.4	89
Riverside-San Bernardino, CA	44.5	84.1	89.0	90
Barnstable-Yarmouth, MA	3.6	6.8	88.9	91
Longview-Marshall, TX	4.5	8.5	88.9	92
Tyler, TX	3.6	6.8	88.9	93
Seattle-Bellevue-Everett, WA	60.9	115.0	88.8	94
Fort Myers-Cape Coral, FL	6.0	11.3	88.3	95
Kenosha, WI	1.7	3.2	88.2	96
Lincoln, NE	5.1	9.6	88.2	97
Memphis, TN-AR-MS	20.7	38.9	87.9	98
Fort Wayne, IN	9.9	18.6	87.9	99
Richland-Kennewick-Pasco, WA	3.3	6.2	87.9	100
Visalia-Tulare-Porterville, CA	5.6	10.5	87.5	101
Panama City, FL	2.4	4.5	87.5	102
Owensboro, KY	1.6	3.0	87.5	103
Hattiesburg, MS	1.6	3.0	87.5	104
Appleton-Oshkosh-Neenah, WI	7.2	13.5	87.5	105
La Crosse, WI-MN	2.4	4.5	87.5	106
Fargo-Moorhead, ND-MN	3.1	5.8	87.1	107
Middlesex-Somerset-Hunterdon, NJ	34.0	63.6	87.1	108
Minneapolis-St. Paul, MN-WI	64.9	121.3	86.9	109
Indianapolis, IN	30.9	57.7	86.7	110
Mobile, AL	7.5	14.0	86.7	111
Missoula, MT	1.5	2.8	86.7	112
Sumter, SC	1.5	2.8	86.7	113
Chattanooga, TN-GA	9.4	17.5	86.2	114
Jersey City, NJ	15.1	28.1	86.1	115
Omaha, NE-IA	14.1	26.2	85.8	116
Fort Smith, AR-OK	3.4	6.3	85.3	117
Greensboro-W-Salem-High Point,NC	25.0	46.3	85.2	118
Flagstaff, AZ-UT	2.0	3.7	85.0	119
San Angelo, TX	2.0	3.7	85.0	120
Macon, GA	6.5	12.0	84.6	121
Punta Gorda, FL	1.3	2.4	84.6	122
Iowa City, IA	1.9	3.5	84.2	123
El Paso, TX	10.1	18.6	84.2	124
Albany, GA	2.5	4.6	84.0	125
Madison, WI	10.0	18.4	84.0	126
Rochester, MN	2.9	5.3	82.8	127
Yakima, WA	3.4	6.2	82.4	128

Nominal Gross Metro Product	1990	2000	Percent Change	Rank
(Billions, $Current)			(%)	
Fayetteville, NC	3.9	7.1	82.1	129
Sacramento, CA	34.7	63.1	81.8	130
Elkhart-Goshen, IN	4.9	8.9	81.6	131
Salinas, CA	7.6	13.8	81.6	132
Vallejo-Fairfield-Napa, CA	8.0	14.5	81.3	133
Bismarck, ND	1.6	2.9	81.3	134
Lubbock, TX	4.7	8.5	80.9	135
Lynchburg, VA	4.7	8.5	80.9	136
Louisville, KY-IN	21.4	38.7	80.8	137
Florence, SC	2.6	4.7	80.8	138
Redding, CA	3.6	6.5	80.6	139
Kansas City, MO-KS	35.9	64.8	80.5	140
Little Rock-N. L.Rock, AR	10.2	18.4	80.4	141
Lafayette, LA	10.1	18.2	80.2	142
Corpus Christi, TX	7.0	12.6	80.0	143
Galveston-Texas City, TX	4.0	7.2	80.0	144
Sherman-Denison, TX	2.0	3.6	80.0	145
Janesville-Beloit, WI	2.5	4.5	80.0	146
San Jose, CA	47.6	85.4	79.4	147
Lancaster, PA	9.2	16.5	79.3	148
Montgomery, AL	5.8	10.4	79.3	149
Santa Cruz-Watsonville, CA	5.3	9.5	79.2	150
Gainesville, FL	4.3	7.7	79.1	151
Cedar Rapids, IA	4.3	7.7	79.1	152
Columbus, OH	33.9	60.7	79.1	153
Tallahassee, FL	5.7	10.2	78.9	154
Lafayette, IN	3.3	5.9	78.8	155
Auburn-Opelika, AL	1.4	2.5	78.6	156
Tuscaloosa, AL	2.8	5.0	78.6	157
Jacksonville, NC	1.4	2.5	78.6	158
Asheville, NC	4.2	7.5	78.6	159
Savannah, GA	5.9	10.5	78.0	160
Richmond-Petersburg, VA	25.7	45.7	77.8	161
Chicago, IL	187.5	332.8	77.5	162
Abilene, TX	2.6	4.6	76.9	163
Des Moines, IA	10.8	19.1	76.9	164
Jackson, MS	8.1	14.3	76.5	165
Monmouth-Ocean, NJ	18.7	33.0	76.5	166
Portland, ME	6.8	12.0	76.5	167
Fort Pierce-Port St. Lucie, FL	3.8	6.7	76.3	168
Daytona Beach, FL	5.9	10.4	76.3	169
Decatur, AL	2.1	3.7	76.2	170
State College, PA	2.5	4.4	76.0	171

Nominal Gross Metro Product	1990	2000	Percent Change	Rank
(Billions, $Current)			(%)	
Greenville-Spartanburg-Anderson, SC	17.0	29.9	75.9	172
Baton Rouge, LA	11.6	20.4	75.9	173
Birmingham, AL	18.2	32.0	75.8	174
Lakeland-Winter Haven, FL	7.4	13.0	75.7	175
Pensacola, FL	6.0	10.5	75.0	176
Harrisburg-Lebanon-Carlisle, PA	15.5	27.1	74.8	177
Norfolk-Va Beach-Newport News, VA-NC	29.7	51.7	74.1	178
San Diego, CA	60.2	104.6	73.8	179
Boston, MA	137.8	238.8	73.3	180
Odessa-Midland, TX	7.1	12.3	73.2	181
Washington, DC-MD-VA-WV	125.3	217.0	73.2	182
Peoria-Pekin, IL	7.7	13.3	72.7	183
Bloomington, IN	2.2	3.8	72.7	184
Billings, MT	2.2	3.8	72.7	185
Roanoke, VA	7.3	12.6	72.6	186
Beaumont-Port Arthur, TX	7.2	12.4	72.2	187
Evansville-Henderson, IN-KY	6.1	10.5	72.1	188
Ann Arbor, MI	11.1	19.1	72.1	189
Columbia, SC	11.1	19.1	72.1	190
Bremerton, WA	3.2	5.5	71.9	191
Johnson City-Kingspt-Bristol, TN-VA	8.1	13.9	71.6	192
Hagerstown, MD	2.8	4.8	71.4	193
Sharon, PA	2.1	3.6	71.4	194
Charleston, WV	4.9	8.4	71.4	195
Ventura, CA	14.3	24.5	71.3	196
Charleston-N Charleston, SC	8.6	14.7	70.9	197
Duluth-Superior, MN-WI	4.8	8.2	70.8	198
Sheboygan, WI	2.4	4.1	70.8	199
Orange Co, CA	76.2	130.0	70.6	200
Newburgh, NY-PA	6.4	10.9	70.3	201
Fresno, CA	15.5	26.3	69.7	202
Detroit, MI	92.3	156.3	69.3	203
Waterloo-Cedar Falls, IA	2.6	4.4	69.2	204
Erie, PA	5.8	9.8	69.0	205
Wichita Falls, TX	2.9	4.9	69.0	206
York, PA	7.4	12.5	68.9	207
New London-Norwich, CT	6.1	10.3	68.9	208
Allentown-Bethlehem-Easton, PA	12.2	20.6	68.9	209
Reading, PA	7.7	13.0	68.8	210
Stockton-Lodi, CA	9.6	16.2	68.8	211
Cincinnati, OH-KY-IN	35.2	59.4	68.8	212
Akron, OH	13.0	21.9	68.5	213
Hickory-Morganton, NC	7.6	12.8	68.4	214

Nominal Gross Metro Product	1990	2000	Percent Change	Rank
(Billions, $Current)			(%)	
Yuba City, CA	2.2	3.7	68.2	215
Augusta-Aiken, GA-SC	8.8	14.8	68.2	216
Kokomo, IN	2.2	3.7	68.2	217
N Haven-BrPt-Stmfd-Dbry-Wtrbry, CT	45.7	76.8	68.1	218
Altoona, PA	2.5	4.2	68.0	219
Cleveland-Lorain-Elyria, OH	48.1	80.8	68.0	220
Gadsden, AL	1.5	2.5	66.7	221
South Bend, IN	5.1	8.5	66.7	222
Great Falls, MT	1.2	2.0	66.7	223
Glens Falls, NY	2.7	4.5	66.7	224
Burlington, VT	4.2	7.0	66.7	225
Milwaukee-Waukesha, WI	32.9	54.8	66.6	226
Oakland, CA	55.4	92.1	66.2	227
Pittsburgh, PA	48.6	80.7	66.0	228
Racine, WI	3.2	5.3	65.6	229
St. Louis, MO-IL	54.1	89.6	65.6	230
Santa Barbara-Santa Maria-Lompoc, CA	10.4	17.2	65.4	231
Kalamazoo-Battle Creek, MI	9.5	15.7	65.3	232
Atlantic-Cape May, NJ	9.5	15.7	65.3	233
Nassau-Suffolk, NY	64.8	106.8	64.8	234
Grand Forks, ND-MN	1.7	2.8	64.7	235
Miami, FL	43.5	71.6	64.6	236
Melbourne-Titusville-Palm Bay, FL	7.3	12.0	64.4	237
Williamsport, PA	2.5	4.1	64.0	238
Oklahoma City, OK	19.7	32.3	64.0	239
Texarkana, AR-TX	2.2	3.6	63.6	240
Muncie, IN	2.2	3.6	63.6	241
Alexandria, LA	2.2	3.6	63.6	242
Scranton-Wilkes-Barre-Hazelton, PA	12.6	20.6	63.5	243
Brazoria, TX	3.8	6.2	63.2	244
Huntsville, AL	6.5	10.6	63.1	245
Utica-Rome, NY	7.3	11.9	63.0	246
Jackson, MI	2.7	4.4	63.0	247
Saginaw-Bay City-Midland, MI	7.8	12.7	62.8	248
Tulsa, OK	15.8	25.7	62.7	249
Lansing-East Lansing, MI	9.9	16.1	62.6	250
Providence-Warwick, RI	20.0	32.5	62.5	251
New York, NY	269.6	437.8	62.4	252
Trenton, NJ	11.4	18.5	62.3	253
Youngstown-Warren, OH	10.0	16.2	62.0	254
Florence, AL	2.1	3.4	61.9	255
Philadelphia, PA-NJ	112.9	182.4	61.6	256
Pine Bluff, AR	1.3	2.1	61.5	257

Nominal Gross Metro Product	1990	2000	Percent Change	Rank
(Billions, $Current)			(%)	
Charlottesville, VA	3.9	6.3	61.5	258
Goldsboro, NC	1.8	2.9	61.1	259
Elmira, NY	2.3	3.7	60.9	260
Benton Harbor, MI	3.3	5.3	60.6	261
Toledo, OH	13.2	21.2	60.6	262
Kankakee, IL	2.0	3.2	60.0	263
Newark, NJ	60.2	96.3	60.0	264
San Francisco, CA	67.2	107.3	59.7	265
Johnstown, PA	4.2	6.7	59.5	266
Albany-Schenectady-Troy, NY	23.7	37.8	59.5	267
Wichita, KS	11.0	17.5	59.1	268
Topeka, KS	4.1	6.5	58.5	269
Springfield, IL	7.2	11.4	58.3	270
Jamestown, NY	3.1	4.9	58.1	271
Anniston, AL	1.9	3.0	57.9	272
Lewiston-Auburn, ME	1.9	3.0	57.9	273
St. Joseph, MO	1.9	3.0	57.9	274
Dothan, AL	2.6	4.1	57.7	275
Sioux City, IA-NE	2.6	4.1	57.7	276
Rochester, NY	29.0	45.7	57.6	277
Canton-Massillon, OH	8.1	12.7	56.8	278
Davenport-Moline-Rock Isld, IA-IL	8.3	13.0	56.6	279
Danville, VA	2.3	3.6	56.5	280
Bergen-Passaic, NJ	37.9	59.3	56.5	281
Monroe, LA	3.2	5.0	56.3	282
Pittsfield, MA	3.2	5.0	56.3	283
Bakersfield, CA	12.1	18.9	56.2	284
Terre Haute, IN	2.7	4.2	55.6	285
Cumberland, MD-WV	1.8	2.8	55.6	286
Vineland-Millville-Bridgeton, NJ	3.6	5.6	55.6	287
Parkersburg-Marietta, WV-OH	2.9	4.5	55.2	288
Baltimore, MD	62.0	96.2	55.2	289
Dubuque, IA	2.0	3.1	55.0	290
Lake Charles, LA	4.0	6.2	55.0	291
Gary, IN	10.4	16.1	54.8	292
Buffalo-Niagara Falls, NY	30.9	47.8	54.7	293
Enid, OK	1.1	1.7	54.5	294
Champaign-Urbana, IL	3.7	5.7	54.1	295
Hartford, CT	41.8	64.3	53.8	296
Springfield, MA	13.6	20.9	53.7	297
Bangor, ME	2.8	4.3	53.6	298
Dayton-Springfield, OH	20.4	31.2	52.9	299
Cheyenne, WY	1.7	2.6	52.9	300

Nominal Gross Metro Product	1990	2000	Percent Change	Rank
(Billions, $Current)			(%)	
Casper, WY	1.9	2.9	52.6	301
Huntington-Ashland, WV-KY-OH	5.0	7.6	52.0	302
Rocky Mount, NC	3.1	4.7	51.6	303
Syracuse, NY	19.9	30.1	51.3	304
Rockford, IL	9.5	14.3	50.5	305
Lima, OH	3.6	5.4	50.0	306
Lawton, OK	1.6	2.4	50.0	307
Wheeling, WV-OH	2.8	4.2	50.0	308
Binghamton, NY	6.7	9.9	47.8	309
Mansfield, OH	3.9	5.7	46.2	310
New Orleans, LA	32.3	46.5	44.0	311
Flint, MI	7.9	11.3	43.0	312
Dutchess County, NY	6.7	9.5	41.8	313
Shreveport-Bossier City, LA	8.7	12.3	41.4	314
Decatur, IL	3.2	4.5	40.6	315
Los Angeles-L Beach, CA	261.7	363.7	39.0	316
Steubenville-Weirton, OH-WV	2.6	3.5	34.6	317
Honolulu, HI	25.1	33.0	31.5	318
Anchorage, AK	10.5	12.8	21.9	319

Table 8 –Gross Product Metro Areas

Nominal Gross Product	1990	2000	Avg. Annual Growth Rate	Rank
(Billions, $Current)			(%)	
Las Vegas, NV-AZ	20.5	54.6	10.3	1
Austin-San Marcos, TX	18.8	48.2	9.8	2
Boise City, ID	5.9	14.4	9.4	3
Laredo, TX	2.7	6.6	9.4	4
Phoenix-Mesa, AZ	47.3	114.2	9.2	5
Fort Collins-Loveland, CO	3.5	8.3	9.2	6
Provo-Orem, UT	3.4	8.3	9.2	7
Colorado Springs, CO	7.3	17.6	9.1	8
Greeley, CO	2.2	5.2	9.1	9
Myrtle Beach, SC	2.9	6.9	9.1	10
Yolo, CA	3.9	8.9	8.5	11
Grand Junction, CO	1.7	3.8	8.5	12
Albuquerque, NM	11.3	25.6	8.5	13
Atlanta, GA	73.4	164.2	8.4	14
Corvallis, OR	1.2	2.7	8.4	15
Boulder-Longmont, CO	5.4	12.0	8.3	16
Sioux Falls, SD	3.6	8.0	8.3	17
Salt Lake City-Ogden, UT	21.1	46.4	8.2	18
Fayetteville-Springdale-Rogers, AR	4.1	9.0	8.1	19
Denver, CO	41.8	91.1	8.1	20
Santa Rosa, CA	9.5	20.5	8.0	21
Yuma, AZ	1.2	2.7	7.9	22
Naples, FL	3.2	6.8	7.9	23
Raleigh-Durham-Chapel Hill, NC	20.7	44.3	7.9	24
Wilmington, NC	3.6	7.7	7.9	25
Orlando, FL	28.2	59.5	7.8	26
McAllen-Edinburg-Mission, TX	5.1	10.8	7.8	27
Green Bay, WI	4.7	10.0	7.8	28
Charlotte-Gastonia-R Hill, NC-SC	29.3	61.3	7.7	29
Portland-Vancouver, OR-WA	34.1	71.5	7.7	30
Jackson, TN	1.9	4.0	7.7	31
Tucson, AZ	11.0	22.9	7.6	32
San Antonio, TX	25.8	53.7	7.6	33
S L Obispo-Atascadero-Paso Robles, CA	4.9	10.1	7.5	34
Medford-Ashford, OR	2.5	5.1	7.5	35
Nashville, TN	21.9	45.2	7.5	36
Dallas, TX	77.6	160.0	7.5	37
Pueblo, CO	2.0	4.2	7.4	38
Manchester-Nashua, NH	14.8	30.2	7.4	39
Santa Fe, NM	2.2	4.5	7.4	40
Bryan-College Station, TX	2.6	5.3	7.4	41
Killeen-Temple, TX	3.5	7.3	7.4	42

Nominal Gross Product	1990	2000	Avg. Annual Growth Rate	Rank
(Billions, $Current)			(%)	
Ocala, FL	2.9	5.9	7.3	43
Salem, OR	4.9	9.9	7.3	44
Clarksville-Hopkinsville, TN-KY	2.2	4.5	7.3	45
Fort Walton Beach, FL	2.6	5.1	7.2	46
Eugene-Springfield, OR	5.2	10.4	7.2	47
Fort Worth-Arlington, TX	31.4	63.0	7.2	48
Athens, GA	2.7	5.4	7.1	49
Bloomington-Normal, IL	4.1	8.2	7.1	50
Gr Rapids-Muskegon-Holland, MI	21.4	42.3	7.1	51
Biloxi-Gulfport-Pascagoula, MS	4.8	9.4	7.1	52
Springfield, MO	5.4	10.8	7.1	53
Reno, NV	7.4	14.7	7.1	54
Brownsv-Harlingen-San Benito, TX	3.8	7.5	7.1	55
Jacksonville, FL	21.9	43.0	7.0	56
Sarasota-Bradenton, FL	8.6	16.9	7.0	57
Tampa-St Petersb-Clrwater, FL	41.7	82.2	7.0	58
Pocatello, ID	1.0	1.9	7.0	59
Las Cruces, NM	1.8	3.6	7.0	60
Merced, CA	3.1	6.1	6.9	61
Columbus, GA-AL	5.0	9.8	6.9	62
Columbia, MO	2.5	5.0	6.9	63
Joplin, MO	2.8	5.5	6.9	64
Rapid City, SD	1.5	3.0	6.9	65
Bellingham, WA	2.7	5.4	6.9	66
Olympia, WA	3.3	6.4	6.9	67
Modesto, CA	7.8	15.0	6.8	68
W Palm Beach-Boca Raton, FL	17.2	33.2	6.8	69
Knoxville, TN	11.1	21.5	6.8	70
Houston, TX	91.8	177.5	6.8	71
Victoria, TX	1.7	3.3	6.8	72
Waco, TX	4.0	7.8	6.8	73
Spokane, WA	8.0	15.4	6.8	74
Eau Claire, WI	2.5	4.8	6.8	75
Flagstaff, AZ-UT	2.0	3.7	6.7	76
Wilmington-Newark, DE	16.4	31.4	6.7	77
Fort Lauderdale, FL	24.5	46.7	6.7	78
Lawrence, KS	1.4	2.7	6.7	79
Houma, LA	4.5	8.6	6.7	80
Barnstable-Yarmouth, MA	3.6	6.8	6.7	81
St. Cloud, MN	3.1	6.0	6.7	82
Missoula, MT	1.5	2.8	6.7	83
Amarillo, TX	3.9	7.5	6.7	84
Longview-Marshall, TX	4.5	8.5	6.7	85

Nominal Gross Product	1990	2000	Avg. Annual Growth Rate	Rank
(Billions, $Current)			(%)	
Tyler, TX	3.6	6.8	6.7	86
Tacoma, WA	10.0	19.0	6.7	87
Wausau, WI	2.5	4.8	6.7	88
Chico-Paradise, CA	3.9	7.5	6.6	89
Riverside-San Bernardino, CA	44.5	84.1	6.6	90
Dover, DE	2.0	3.8	6.6	91
Lexington, KY	9.4	17.8	6.6	92
Lincoln, NE	5.1	9.6	6.6	93
Greenville, NC	2.2	4.2	6.6	94
Fargo-Moorhead, ND-MN	3.1	5.8	6.6	95
Hamilton-Middletown, OH	4.5	8.6	6.6	96
Seattle-Bellevue-Everett, WA	60.9	115.0	6.6	97
Fort Smith, AR-OK	3.4	6.3	6.5	98
Jonesboro, AR	1.2	2.3	6.5	99
Visalia-Tulare-Porterville, CA	5.6	10.5	6.5	100
Fort Myers-Cape Coral, FL	6.0	11.3	6.5	101
Fort Wayne, IN	9.9	18.6	6.5	102
Indianapolis, IN	30.9	57.7	6.5	103
Minneapolis-St. Paul, MN-WI	64.9	121.3	6.5	104
Middlesex-Somerset-Hunterdon, NJ	34.0	63.6	6.5	105
Memphis, TN-AR-MS	20.7	38.9	6.5	106
Richland-Kennewick-Pasco, WA	3.3	6.2	6.5	107
Kenosha, WI	1.7	3.2	6.5	108
La Crosse, WI-MN	2.4	4.5	6.5	109
Mobile, AL	7.5	14.0	6.4	110
Macon, GA	6.5	12.0	6.4	111
Iowa City, IA	1.9	3.5	6.4	112
Omaha, NE-IA	14.1	26.2	6.4	113
Jersey City, NJ	15.1	28.1	6.4	114
Greensboro-W-Salem-High Point,NC	25.0	46.3	6.4	115
Chattanooga, TN-GA	9.4	17.5	6.4	116
Appleton-Oshkosh-Neenah, WI	7.2	13.5	6.4	117
Panama City, FL	2.4	4.5	6.3	118
Rochester, MN	2.9	5.3	6.3	119
Hattiesburg, MS	1.6	3.0	6.3	120
Sumter, SC	1.5	2.8	6.3	121
El Paso, TX	10.1	18.6	6.3	122
Madison, WI	10.0	18.4	6.3	123
Sacramento, CA	34.7	63.1	6.2	124
Vallejo-Fairfield-Napa, CA	8.0	14.5	6.2	125
Punta Gorda, FL	1.3	2.4	6.2	126
Albany, GA	2.5	4.6	6.2	127
Fayetteville, NC	3.9	7.1	6.2	128

Nominal Gross Product	1990	2000	Avg. Annual Growth Rate	Rank
(Billions, $Current)			(%)	
Jacksonville, NC	1.4	2.5	6.2	129
Lubbock, TX	4.7	8.5	6.2	130
San Angelo, TX	2.0	3.7	6.2	131
Yakima, WA	3.4	6.2	6.2	132
Tuscaloosa, AL	2.8	5.0	6.1	133
Little Rock-N. L.Rock, AR	10.2	18.4	6.1	134
Salinas, CA	7.6	13.8	6.1	135
Louisville, KY-IN	21.4	38.7	6.1	136
Lafayette, LA	10.1	18.2	6.1	137
Kansas City, MO-KS	35.9	64.8	6.1	138
Asheville, NC	4.2	7.5	6.1	139
Bismarck, ND	1.6	2.9	6.1	140
Corpus Christi, TX	7.0	12.6	6.1	141
Galveston-Texas City, TX	4.0	7.2	6.1	142
Montgomery, AL	5.8	10.4	6.0	143
San Jose, CA	47.6	85.4	6.0	144
Santa Cruz-Watsonville, CA	5.3	9.5	6.0	145
Tallahassee, FL	5.7	10.2	6.0	146
Elkhart-Goshen, IN	4.9	8.9	6.0	147
Cedar Rapids, IA	4.3	7.7	6.0	148
Owensboro, KY	1.6	3.0	6.0	149
Columbus, OH	33.9	60.7	6.0	150
Lancaster, PA	9.2	16.5	6.0	151
Florence, SC	2.6	4.7	6.0	152
Lynchburg, VA	4.7	8.5	6.0	153
Janesville-Beloit, WI	2.5	4.5	6.0	154
Redding, CA	3.6	6.5	5.9	155
Gainesville, FL	4.3	7.7	5.9	156
Savannah, GA	5.9	10.5	5.9	157
Chicago, IL	187.5	332.8	5.9	158
Lafayette, IN	3.3	5.9	5.9	159
Des Moines, IA	10.8	19.1	5.9	160
Portland, ME	6.8	12.0	5.9	161
Jackson, MS	8.1	14.3	5.9	162
Abilene, TX	2.6	4.6	5.9	163
Sherman-Denison, TX	2.0	3.6	5.9	164
Richmond-Petersburg, VA	25.7	45.7	5.9	165
Birmingham, AL	18.2	32.0	5.8	166
Fort Pierce-Port St. Lucie, FL	3.8	6.7	5.8	167
Lakeland-Winter Haven, FL	7.4	13.0	5.8	168
Pensacola, FL	6.0	10.5	5.8	169
Baton Rouge, LA	11.6	20.4	5.8	170
Monmouth-Ocean, NJ	18.7	33.0	5.8	171

Nominal Gross Product	1990	2000	Avg. Annual Growth Rate	Rank
(Billions, $Current)			(%)	
Greenville-Spartanburg-Anderson, SC	17.0	29.9	5.8	172
Sheboygan, WI	2.4	4.1	5.8	173
San Diego, CA	60.2	104.6	5.7	174
Daytona Beach, FL	5.9	10.4	5.7	175
Peoria-Pekin, IL	7.7	13.3	5.7	176
Boston, MA	137.8	238.8	5.7	177
Billings, MT	2.2	3.8	5.7	178
Harrisburg-Lebanon-Carlisle, PA	15.5	27.1	5.7	179
State College, PA	2.5	4.4	5.7	180
Norfolk-Va Beach-Newport News, VA-NC	29.7	51.7	5.7	181
Roanoke, VA	7.3	12.6	5.7	182
Auburn-Opelika, AL	1.4	2.5	5.6	183
Washington, DC-MD-VA-WV	125.3	217.0	5.6	184
Bloomington, IN	2.2	3.8	5.6	185
Evansville-Henderson, IN-KY	6.1	10.5	5.6	186
Hagerstown, MD	2.8	4.8	5.6	187
Columbia, SC	11.1	19.1	5.6	188
Johnson City-Kingspt-Bristol, TN-VA	8.1	13.9	5.6	189
Beaumont-Port Arthur, TX	7.2	12.4	5.6	190
Odessa-Midland, TX	7.1	12.3	5.6	191
Decatur, AL	2.1	3.7	5.5	192
Orange County, CA	76.2	130.0	5.5	193
Ventura, CA	14.3	24.5	5.5	194
Yuba City, CA	2.2	3.7	5.5	195
New London-Norwich, CT	6.1	10.3	5.5	196
Waterloo-Cedar Falls, IA	2.6	4.4	5.5	197
Ann Arbor, MI	11.1	19.1	5.5	198
Duluth-Superior, MN-WI	4.8	8.2	5.5	199
Newburgh, NY-PA	6.4	10.9	5.5	200
Reading, PA	7.7	13.0	5.5	201
Sharon, PA	2.1	3.6	5.5	202
Charleston-N Charleston, SC	8.6	14.7	5.5	203
Bremerton, WA	3.2	5.5	5.5	204
Charleston, WV	4.9	8.4	5.5	205
Fresno, CA	15.5	26.3	5.4	206
Stockton-Lodi, CA	9.6	16.2	5.4	207
Detroit, MI	92.3	156.3	5.4	208
Cincinnati, OH-KY-IN	35.2	59.4	5.4	209
Allentown-Bethlehem-Easton, PA	12.2	20.6	5.4	210
Altoona, PA	2.5	4.2	5.4	211
Erie, PA	5.8	9.8	5.4	212
York, PA	7.4	12.5	5.4	213
Gadsden, AL	1.5	2.5	5.3	214

Nominal Gross Product	1990	2000	Avg. Annual Growth Rate	Rank
(Billions, $Current)			(%)	
N Haven-BrPt-Stmfd-Dbry-Wtrbry, CT	45.7	76.8	5.3	215
Augusta-Aiken, GA-SC	8.8	14.8	5.3	216
Kokomo, IN	2.2	3.7	5.3	217
Hickory-Morganton, NC	7.6	12.8	5.3	218
Akron, OH	13.0	21.9	5.3	219
Cleveland-Lorain-Elyria, OH	48.1	80.8	5.3	220
Oakland, CA	55.4	92.1	5.2	221
Santa Barbara-Santa Maria-Lompoc, CA	10.4	17.2	5.2	222
South Bend, IN	5.1	8.5	5.2	223
Kalamazoo-Battle Creek, MI	9.5	15.7	5.2	224
St. Louis, MO-IL	54.1	89.6	5.2	225
Atlantic-Cape May, NJ	9.5	15.7	5.2	226
Grand Forks, ND-MN	1.7	2.8	5.2	227
Pittsburgh, PA	48.6	80.7	5.2	228
Wichita Falls, TX	2.9	4.9	5.2	229
Burlington, VT	4.2	7.0	5.2	230
Milwaukee-Waukesha, WI	32.9	54.8	5.2	231
Huntsville, AL	6.5	10.6	5.1	232
Melbourne-Titusville-Palm Bay, FL	7.3	12.0	5.1	233
Miami, FL	43.5	71.6	5.1	234
Jackson, MI	2.7	4.4	5.1	235
Glens Falls, NY	2.7	4.5	5.1	236
Nassau-Suffolk, NY	64.8	106.8	5.1	237
Goldsboro, NC	1.8	2.9	5.1	238
Oklahoma City, OK	19.7	32.3	5.1	239
Texarkana, AR-TX	2.2	3.6	5.0	240
Lansing-East Lansing, MI	9.9	16.1	5.0	241
Saginaw-Bay City-Midland, MI	7.8	12.7	5.0	242
Trenton, NJ	11.4	18.5	5.0	243
Elmira, NY	2.3	3.7	5.0	244
New York, NY	269.6	437.8	5.0	245
Utica-Rome, NY	7.3	11.9	5.0	246
Tulsa, OK	15.8	25.7	5.0	247
Scranton-Wilkes-Barre-Hazelton, PA	12.6	20.6	5.0	248
Williamsport, PA	2.5	4.1	5.0	249
Brazoria, TX	3.8	6.2	5.0	250
Racine, WI	3.2	5.3	5.0	251
Florence, AL	2.1	3.4	4.9	252
Alexandria, LA	2.2	3.6	4.9	253
Lewiston-Auburn, ME	1.9	3.0	4.9	254
Benton Harbor, MI	3.3	5.3	4.9	255
Great Falls, MT	1.2	2.0	4.9	256
Toledo, OH	13.2	21.2	4.9	257

Nominal Gross Product	1990	2000	Avg. Annual Growth Rate	Rank
(Billions, $Current)			(%)	
Youngstown-Warren, OH	10.0	16.2	4.9	258
Philadelphia, PA-NJ	112.9	182.4	4.9	259
Providence-Warwick, RI	20.0	32.5	4.9	260
Charlottesville, VA	3.9	6.3	4.9	261
San Francisco, CA	67.2	107.3	4.8	262
Kankakee, IL	2.0	3.2	4.8	263
Newark, NJ	60.2	96.3	4.8	264
Albany-Schenectady-Troy, NY	23.7	37.8	4.8	265
Springfield, IL	7.2	11.4	4.7	266
Muncie, IN	2.2	3.6	4.7	267
Dubuque, IA	2.0	3.1	4.7	268
Sioux City, IA-NE	2.6	4.1	4.7	269
Topeka, KS	4.1	6.5	4.7	270
Wichita, KS	11.0	17.5	4.7	271
Rochester, NY	29.0	45.7	4.7	272
Enid, OK	1.1	1.7	4.7	273
Johnstown, PA	4.2	6.7	4.7	274
Cheyenne, WY	1.7	2.6	4.7	275
Anniston, AL	1.9	3.0	4.6	276
Dothan, AL	2.6	4.1	4.6	277
Bakersfield, CA	12.1	18.9	4.6	278
Monroe, LA	3.2	5.0	4.6	279
Bergen-Passaic, NJ	37.9	59.3	4.6	280
Jamestown, NY	3.1	4.9	4.6	281
Canton-Massillon, OH	8.1	12.7	4.6	282
Parkersburg-Marietta, WV-OH	2.9	4.5	4.6	283
Pine Bluff, AR	1.3	2.1	4.5	284
Davenport-Moline-Rock Isld, IA-IL	8.3	13.0	4.5	285
Lake Charles, LA	4.0	6.2	4.5	286
Baltimore, MD	62.0	96.2	4.5	287
Vineland-Millville-Bridgeton, NJ	3.6	5.6	4.5	288
Buffalo-Niagara Falls, NY	30.9	47.8	4.5	289
Danville, VA	2.3	3.6	4.5	290
Casper, WY	1.9	2.9	4.5	291
Hartford, CT	41.8	64.3	4.4	292
Champaign-Urbana, IL	3.7	5.7	4.4	293
Gary, IN	10.4	16.1	4.4	294
Terre Haute, IN	2.7	4.2	4.4	295
Bangor, ME	2.8	4.3	4.4	296
Pittsfield, MA	3.2	5.0	4.4	297
Springfield, MA	13.6	20.9	4.4	298
Huntington-Ashland, WV-KY-OH	5.0	7.6	4.4	299
Cumberland, MD-WV	1.8	2.8	4.3	300

Nominal Gross Product	1990	2000	Avg. Annual Growth Rate	Rank
(Billions, $Current)			(%)	
St. Joseph, MO	1.9	3.0	4.3	301
Rocky Mount, NC	3.1	4.7	4.3	302
Dayton-Springfield, OH	20.4	31.2	4.3	303
Rockford, IL	9.5	14.3	4.2	304
Syracuse, NY	19.9	30.1	4.2	305
Wheeling, WV-OH	2.8	4.2	4.2	306
Lima, OH	3.6	5.4	4.1	307
Lawton, OK	1.6	2.4	4.0	308
Binghamton, NY	6.7	9.9	3.9	309
Mansfield, OH	3.9	5.7	3.9	310
New Orleans, LA	32.3	46.5	3.7	311
Flint, MI	7.9	11.3	3.7	312
Shreveport-Bossier City, LA	8.7	12.3	3.6	313
Decatur, IL	3.2	4.5	3.5	314
Dutchess County, NY	6.7	9.5	3.5	315
Los Angeles-L Beach, CA	261.7	363.7	3.3	316
Steubenville-Weirton, OH-WV	2.6	3.5	3.1	317
Honolulu, HI	25.1	33.0	2.8	318
Anchorage, AK	10.5	12.8	2.1	319

Table 9 – Gross Product of Countries, U.S. States, and Metro Areas

Gross Product, 2000 (US$ Billions, Current)		
Rank	Country, State, or **Metro Area**	Gross Product
1	United States	9963.050
2	Japan	4614.069
3	Germany	1872.608
4	United Kingdom	1410.153
5	California	1301.735
6	France	1285.747
7	China	1103.716
8	Italy	1074.097
9	New York	806.242
10	Texas	760.645
11	Canada	699.339
12	Brazil	665.287
13	Mexico	577.650
14	Spain	556.562
15	India	510.106
16	Florida	483.245
17	Korea, South	480.176
18	Illinois	472.154
19	**New York, NY**	437.777
20	Australia	427.864
21	Pennsylvania	412.657
22	Ohio	380.597
23	New Jersey	364.535
24	**Los Angeles-L Beach, CA**	363.688
25	Netherlands	360.237
26	**Chicago, IL**	332.812
27	Michigan	328.171
28	Taiwan	322.803
29	Georgia	292.877
30	Argentina	283.686
31	Massachusetts	274.769
32	North Carolina	266.614
33	Virginia	264.856
34	Russia	246.767
35	Switzerland	241.279
36	**Boston, MA**	238.831
37	Belgium	227.049
38	Sweden	224.065
39	Turkey	217.583

Gross Product, 2000 (US$ Billions, Current)		
Rank	Country, State, or **Metro Area**	Gross Product
40	**Washington, DC-MD-VA-WV**	217.045
41	Washington	216.968
42	Indiana	194.632
43	Maryland	187.315
44	Austria	184.944
45	Minnesota	183.901
46	**Philadelphia, PA-NJ**	182.353
47	Missouri	181.341
48	Tennessee	180.165
49	Wisconsin	178.831
50	**Houston, TX**	177.549
51	Colorado	166.241
52	Hong Kong	164.631
53	**Atlanta, GA**	164.234
54	Norway	164.034
55	Poland	162.697
56	Connecticut	160.556
57	**Dallas, TX**	159.951
58	Arizona	158.508
59	Denmark	157.982
60	**Detroit, MI**	156.286
61	Louisiana	149.191
62	Indonesia	147.616
63	Saudi Arabia	145.344
64	South Africa	132.267
65	**Orange Co, CA**	129.991
66	Thailand	128.236
67	Kentucky	122.586
68	Alabama	121.812
69	**Minneapolis-St. Paul, MN-WI**	121.256
70	Oregon	118.345
71	Finland	118.018
72	South Carolina	115.180
73	**Seattle-Bellevue-Everett, WA**	115.041
74	**Phoenix-Mesa, AZ**	114.235
75	Greece	110.870
76	Israel	107.966
77	**San Francisco, CA**	107.334
78	**Nassau-Suffolk, NY**	106.819
79	**San Diego, CA**	104.588
80	Venezuela	102.937
81	Portugal	100.508

Gross Product, 2000 (US$ Billions, Current)		
Rank	Country, State, or **Metro Area**	Gross Product
82	**Newark, NJ**	96.275
83	**Baltimore, MD**	96.231
84	Ireland	95.143
85	Iowa	93.954
86	Singapore	93.665
87	Oklahoma	93.505
88	**Oakland, CA**	92.113
89	Egypt	91.452
90	**Denver, CO**	91.100
91	Colombia	90.033
92	**St. Louis, MO-IL**	89.565
93	Malaysia	88.813
94	Kansas	86.041
95	**San Jose, CA**	85.382
96	**Riverside-San Bernardino, CA**	84.106
97	**Tampa-St Petersb-Clrwater, FL**	82.233
98	**Cleveland-Lorain-Elyria, OH**	80.754
99	**Pittsburgh, PA**	80.742
100	Philippines	77.995
101	**N Haven-BrPt-Stmfd-Dbry-Wtrbry, CT**	76.780
102	Nevada	75.997
103	Chile	72.962
104	**Miami, FL**	71.631
105	**Portland-Vancouver, OR-WA**	71.536
106	Arkansas	69.341
107	Mississippi	68.846
108	Utah	68.639
109	Iran	67.107
110	Puerto Rico	65.329
111	**Kansas City, MO-KS**	64.816
112	**Hartford, CT**	64.296
113	**Middlesex-Somerset-Hunterdon, NJ**	63.616
114	**Sacramento, CA**	63.099
115	**Fort Worth-Arlington, TX**	63.012
116	Pakistan	62.748
117	Peru	62.746
118	D. C.	61.279
119	**Charlotte-Gastonia-R Hill, NC-SC**	61.270
120	**Columbus, OH**	60.745
121	United Arab	60.722
122	**Orlando, FL**	59.470

Gross Product, 2000 (US$ Billions, Current)		
Rank	Country, State, or **Metro Area**	Gross Product
123	**Cincinnati, OH-KY-IN**	59.392
124	**Bergen-Passaic, NJ**	59.280
125	Nebraska	58.561
126	**Indianapolis, IN**	57.657
127	New Mexico	56.108
128	Nigeria	54.875
129	**Milwaukee-Waukesha, WI**	54.752
130	**Las Vegas, NV-AZ**	54.621
131	**San Antonio, TX**	53.749
132	Algeria	52.800
133	New Zealand	52.126
134	**Norfolk-Va Beach-Newport News, VA-NC**	51.694
135	Czech	50.805
136	**Austin-San Marcos, TX**	48.154
137	**Buffalo-Niagara Falls, NY**	47.844
138	New Hampshire	47.810
139	Hungary	47.371
140	**Fort Lauderdale, FL**	46.680
141	**New Orleans, LA**	46.532
142	**Salt Lake City-Ogden, UT**	46.407
143	**Greensboro-W-Salem-High Point,NC**	46.332
144	**Rochester, NY**	45.738
145	**Richmond-Petersburg, VA**	45.679
146	West Virginia	45.517
147	**Nashville, TN**	45.214
148	**Raleigh-Durham-Chapel Hill, NC**	44.271
149	Hawaii	43.759
150	**Jacksonville, FL**	42.990
151	**Gr Rapids-Muskegon-Holland, MI**	42.348
152	**Memphis, TN-AR-MS**	38.941
153	**Louisville, KY-IN**	38.651
154	Bangladesh	38.513
155	Delaware	38.501
156	Kuwait	38.048
157	**Albany-Schenectady-Troy, NY**	37.790
158	Maine	37.579
159	Idaho	36.949
160	Syria	35.528
161	Morocco	34.807
162	Rhode Island	34.780
163	**W Palm Beach-Boca Raton, FL**	33.181
164	Romania	33.033

Gross Product, 2000 (US$ Billions, Current)		
Rank	Country, State, or **Metro Area**	Gross Product
165	**Honolulu, HI**	32.973
166	**Monmouth-Ocean, NJ**	32.953
167	**Providence-Warwick, RI**	32.463
168	**Oklahoma City, OK**	32.350
169	**Birmingham, AL**	31.961
170	Ukraine	31.651
171	**Wilmington-Newark, DE**	31.363
172	**Dayton-Springfield, OH**	31.164
173	Vietnam	30.624
174	**Manchester-Nashua, NH**	30.172
175	Alaska	30.065
176	**Syracuse, NY**	30.063
177	**Greenville-Spartanburg-Anderson, SC**	29.862
178	**Jersey City, NJ**	28.147
179	**Harrisburg-Lebanon-Carlisle, PA**	27.076
180	**Fresno, CA**	26.314
181	**Omaha, NE-IA**	26.184
182	**Tulsa, OK**	25.725
183	**Albuquerque, NM**	25.636
184	Iraq	25.487
185	South Dakota	25.170
186	**Ventura, CA**	24.464
187	Wyoming	23.122
188	Montana	22.908
189	**Tucson, AZ**	22.878
190	**Akron, OH**	21.857
191	**Knoxville, TN**	21.516
192	**Toledo, OH**	21.190
193	**Springfield, MA**	20.929
194	**Allentown-Bethlehem-Easton, PA**	20.647
195	**Scranton-Wilkes-Barre-Hazelton, PA**	20.625
196	**Santa Rosa, CA**	20.511
197	Uruguay	20.494
198	**Baton Rouge, LA**	20.389
199	Slovakia	20.169
200	Tunisia	19.965
201	Dominican Republic	19.669
202	North Dakota	19.312
203	**Columbia, SC**	19.139
204	**Ann Arbor, MI**	19.098
205	**Des Moines, IA**	19.073
206	Guatemala	19.050

Gross Product, 2000 (US$ Billions, Current)		
Rank	Country, State, or **Metro Area**	Gross Product
207	**Tacoma, WA**	19.034
208	Croatia (Hrvatska)	18.951
209	**Bakersfield, CA**	18.920
210	Oman	18.818
211	**El Paso, TX**	18.607
212	Vermont	18.582
213	**Fort Wayne, IN**	18.562
214	**Trenton, NJ**	18.504
215	Slovenia	18.465
216	**Madison, WI**	18.446
217	**Little Rock-N. L.Rock, AR**	18.367
218	Kazakhstan	18.242
219	**Lafayette, LA**	18.214
220	Luxembourg	18.098
221	**Lexington, KY**	17.761
222	**Colorado Springs, CO**	17.559
223	**Wichita, KS**	17.464
224	**Chattanooga, TN-GA**	17.455
225	Lebanon	17.357
226	**Santa Barbara-Santa Maria-Lompoc, CA**	17.226
227	**Sarasota-Bradenton, FL**	16.928
228	**Lancaster, PA**	16.537
229	Sri Lanka	16.467
230	**Youngstown-Warren, OH**	16.229
231	**Stockton-Lodi, CA**	16.212
232	**Lansing-East Lansing, MI**	16.139
233	**Gary, IN**	16.131
234	Costa Rica	16.022
235	**Kalamazoo-Battle Creek, MI**	15.742
236	**Atlantic-Cape May, NJ**	15.708
237	**Spokane, WA**	15.408
238	**Modesto, CA**	14.963
239	**Augusta-Aiken, GA-SC**	14.831
240	**Charleston-N Charleston, SC**	14.708
241	**Reno, NV**	14.654
242	Qatar	14.576
243	**Vallejo-Fairfield-Napa, CA**	14.480
244	**Boise City, ID**	14.443
245	**Rockford, IL**	14.273
246	**Jackson, MS**	14.265
247	**Mobile, AL**	14.024
248	**Johnson City-Kingspt-Bristol, TN-VA**	13.900

Gross Product, 2000 (US$ Billions, Current)		
Rank	Country, State, or **Metro Area**	Gross Product
249	**Salinas, CA**	13.815
250	**Appleton-Oshkosh-Neenah, WI**	13.465
251	**Peoria-Pekin, IL**	13.305
252	El Salvador	13.217
253	**Reading, PA**	13.037
254	Ecuador	13.036
255	**Lakeland-Winter Haven, FL**	13.034
256	**Davenport-Moline-Rock Isld, IA-IL**	12.951
257	**Hickory-Morganton, NC**	12.824
258	**Anchorage, AK**	12.809
259	**Saginaw-Bay City-Midland, MI**	12.744
260	**Canton-Massillon, OH**	12.704
261	**Roanoke, VA**	12.641
262	**Corpus Christi, TX**	12.612
263	**York, PA**	12.471
264	**Beaumont-Port Arthur, TX**	12.430
265	**Shreveport-Bossier City, LA**	12.344
266	Uzbekistan	12.299
267	**Odessa-Midland, TX**	12.269
268	Bulgaria	12.228
269	**Macon, GA**	12.017
270	**Melbourne-Titusville-Palm Bay, FL**	12.005
271	**Boulder-Longmont, CO**	12.003
272	**Portland, ME**	11.981
273	**Utica-Rome, NY**	11.905
274	**Springfield, IL**	11.408
275	**Flint, MI**	11.348
276	**Fort Myers-Cape Coral, FL**	11.304
277	Lithuania	11.225
278	Sudan	10.984
279	**Newburgh, NY-PA**	10.947
280	Cote d'Ivoire	10.930
281	**Springfield, MO**	10.786
282	**McAllen-Edinburg-Mission, TX**	10.786
283	Belarus	10.782
284	Kenya	10.601
285	**Huntsville, AL**	10.574
286	**Evansville-Henderson, IN-KY**	10.540
287	**Savannah, GA**	10.510
288	**Pensacola, FL**	10.505
289	**Visalia-Tulare-Porterville, CA**	10.459
290	**Eugene-Springfield, OR**	10.393

Gross Product, 2000 (US$ Billions, Current)		
Rank	Country, State, or **Metro Area**	Gross Product
291	**Montgomery, AL**	10.386
292	**Daytona Beach, FL**	10.356
293	**New London-Norwich, CT**	10.342
294	**Tallahassee, FL**	10.165
295	Cuba	10.068
296	**S L Obispo-Atascadero-Paso Robles, CA**	10.066
297	**Green Bay, WI**	9.987
298	**Salem, OR**	9.945
299	**Binghamton, NY**	9.859
300	**Erie, PA**	9.800
301	**Columbus, GA-AL**	9.790
302	Cameroon	9.671
303	Myanmar	9.609
304	**Lincoln, NE**	9.577
305	**Santa Cruz-Watsonville, CA**	9.530
306	**Dutchess County, NY**	9.464
307	**Biloxi-Gulfport-Pascagoula, MS**	9.438
308	Tanzania	9.315
309	Iceland	9.167
310	**Fayetteville-Springdale-Rogers, AR**	9.033
311	Cyprus	8.935
312	**Elkhart-Goshen, IN**	8.874
313	**Yolo, CA**	8.859
314	**Hamilton-Middletown, OH**	8.577
315	**Houma, LA**	8.559
316	Bolivia	8.544
317	**Longview-Marshall, TX**	8.543
318	**South Bend, IN**	8.539
319	**Lubbock, TX**	8.536
320	**Lynchburg, VA**	8.473
321	**Charleston, WV**	8.439
322	**Fort Collins-Loveland, CO**	8.343
323	**Provo-Orem, UT**	8.280
324	**Bloomington-Normal, IL**	8.201
325	**Duluth-Superior, MN-WI**	8.153
326	**Sioux Falls, SD**	7.993
327	Yemen (Unified)	7.957
328	**Waco, TX**	7.827
329	Jordan	7.750
330	**Wilmington, NC**	7.724
331	**Cedar Rapids, IA**	7.698
332	**Gainesville, FL**	7.696

Gross Product, 2000 (US$ Billions, Current)		
Rank	Country, State, or **Metro Area**	Gross Product
333	**Huntington-Ashland, WV-KY-OH**	7.606
334	Zimbabwe	7.605
335	**Amarillo, TX**	7.533
336	Paraguay	7.490
337	**Asheville, NC**	7.485
338	**Brownsv-Harlingen-San Benito, TX**	7.484
339	**Chico-Paradise, CA**	7.469
340	Libyan Arab Jamahiriya	7.467
341	Panama	7.342
342	Federal Republic of Yugoslavia	7.338
343	Trinidad & Tobago	7.283
344	**Killeen-Temple, TX**	7.254
345	**Galveston-Texas City, TX**	7.231
346	Jamaica	7.179
347	Latvia	7.150
348	Bahrain	7.111
349	**Fayetteville, NC**	7.062
350	**Burlington, VT**	7.000
351	**Myrtle Beach, SC**	6.922
352	**Naples, FL**	6.811
353	**Tyler, TX**	6.807
354	Ethiopia	6.800
355	**Barnstable-Yarmouth, MA**	6.787
356	**Fort Pierce-Port St. Lucie, FL**	6.673
357	**Johnstown, PA**	6.654
358	**Laredo, TX**	6.568
359	**Topeka, KS**	6.539
360	**Redding, CA**	6.452
361	**Olympia, WA**	6.374
362	**Charlottesville, VA**	6.332
363	**Fort Smith, AR-OK**	6.306
364	Ghana	6.303
365	**Lake Charles, LA**	6.212
366	**Yakima, WA**	6.211
367	Uganda	6.195
368	**Richland-Kennewick-Pasco, WA**	6.165
369	**Brazoria, TX**	6.163
370	**Merced, CA**	6.060
371	**St. Cloud, MN**	5.959
372	**Lafayette, IN**	5.936
373	Honduras	5.932
374	**Ocala, FL**	5.928

Gross Product, 2000 (US$ Billions, Current)		
Rank	Country, State, or **Metro Area**	Gross Product
375	**Fargo-Moorhead, ND-MN**	5.834
376	**Champaign-Urbana, IL**	5.731
377	**Mansfield, OH**	5.722
378	**Vineland-Millville-Bridgeton, NJ**	5.568
379	**Joplin, MO**	5.510
380	**Bremerton, WA**	5.471
381	Nepal	5.418
382	**Athens, GA**	5.410
383	**Lima, OH**	5.370
384	**Bellingham, WA**	5.364
385	Botswana	5.360
386	**Bryan-College Station, TX**	5.319
387	**Rochester, MN**	5.307
388	**Benton Harbor, MI**	5.287
389	**Racine, WI**	5.268
390	**Greeley, CO**	5.242
391	Brunei Darussalam	5.210
392	Gabon	5.210
393	**Fort Walton Beach, FL**	5.126
394	**Medford-Ashford, OR**	5.094
395	**Tuscaloosa, AL**	5.017
396	**Monroe, LA**	4.986
397	**Pittsfield, MA**	4.979
398	**Columbia, MO**	4.976
399	West Bank and Gaza	4.939
400	Estonia	4.922
401	**Jamestown, NY**	4.918
402	Azerbaijan	4.896
403	**Wichita Falls, TX**	4.852
404	**Hagerstown, MD**	4.821
405	**Wausau, WI**	4.796
406	**Eau Claire, WI**	4.794
407	**Florence, SC**	4.710
408	**Rocky Mount, NC**	4.669
409	Mauritius	4.601
410	**Albany, GA**	4.570
411	**Abilene, TX**	4.561
412	**La Crosse, WI-MN**	4.548
413	**Decatur, IL**	4.544
414	Senegal	4.530
415	**Parkersburg-Marietta, WV-OH**	4.528
416	**Janesville-Beloit, WI**	4.496

Gross Product, 2000 (US$ Billions, Current)		
Rank	Country, State, or **Metro Area**	Gross Product
417	**Clarksville-Hopkinsville, TN-KY**	4.493
418	**Panama City, FL**	4.492
419	**Santa Fe, NM**	4.485
420	**Glens Falls, NY**	4.472
421	**Jackson, MI**	4.443
422	**State College, PA**	4.437
423	Angola	4.426
424	Turkmenistan	4.404
425	**Waterloo-Cedar Falls, IA**	4.401
426	**Bangor, ME**	4.302
427	**Wheeling, WV-OH**	4.233
428	**Altoona, PA**	4.212
429	**Terre Haute, IN**	4.198
430	Bahamas	4.185
431	**Greenville, NC**	4.179
432	Mozambique	4.170
433	**Pueblo, CO**	4.159
434	**Dothan, AL**	4.139
435	**Sheboygan, WI**	4.121
436	**Williamsport, PA**	4.091
437	**Sioux City, IA-NE**	4.085
438	**Jackson, TN**	4.044
439	Albania	3.894
440	**Billings, MT**	3.843
441	**Dover, DE**	3.830
442	**Bloomington, IN**	3.795
443	Madagascar	3.792
444	**Grand Junction, CO**	3.756
445	**Flagstaff, AZ-UT**	3.746
446	**Yuba City, CA**	3.713
447	**San Angelo, TX**	3.701
448	**Elmira, NY**	3.697
449	**Kokomo, IN**	3.690
450	**Decatur, AL**	3.675
451	Papua New Guinea	3.670
452	**Sherman-Denison, TX**	3.618
453	**Danville, VA**	3.596
454	**Texarkana, AR-TX**	3.591
455	**Muncie, IN**	3.565
456	**Sharon, PA**	3.564
457	**Las Cruces, NM**	3.560
458	**Alexandria, LA**	3.551

Gross Product, 2000 (US$ Billions, Current)		
Rank	Country, State, or **Metro Area**	Gross Product
459	Malta	3.534
460	**Steubenville-Weirton, OH-WV**	3.526
461	**Iowa City, IA**	3.523
462	Namibia	3.505
463	**Florence, AL**	3.423
464	Macedonia	3.408
465	**Victoria, TX**	3.332
466	Congo, Dem. Repub. of	3.278
467	**Kankakee, IL**	3.241
468	**Kenosha, WI**	3.211
469	Guinea	3.210
470	Georgia	3.147
471	**Dubuque, IA**	3.141
472	Cambodia	3.121
473	Zambia	3.096
474	Haiti	3.090
475	**Lewiston-Auburn, ME**	3.009
476	**Rapid City, SD**	3.006
477	**Anniston, AL**	3.000
478	**Hattiesburg, MS**	2.993
479	**St. Joseph, MO**	2.959
480	**Owensboro, KY**	2.950
481	**Goldsboro, NC**	2.928
482	Congo, Republic of	2.919
483	**Casper, WY**	2.875
484	**Bismarck, ND**	2.856
485	**Sumter, SC**	2.790
486	**Cumberland, MD-WV**	2.785
487	**Missoula, MT**	2.779
488	**Grand Forks, ND-MN**	2.765
489	**Lawrence, KS**	2.737
490	Barbados	2.685
491	**Corvallis, OR**	2.681
492	**Yuma, AZ**	2.677
493	Bermuda	2.674
494	**Cheyenne, WY**	2.640
495	**Jacksonville, NC**	2.513
496	Nicaragua	2.502
497	**Auburn-Opelika, AL**	2.484
498	**Gadsden, AL**	2.466
499	Burkina Faso	2.443
500	**Punta Gorda, FL**	2.429

Gross Product, 2000 (US$ Billions, Current)		
Rank	Country, State, or **Metro Area**	Gross Product
501	Mali	2.399
502	**Lawton, OK**	2.369
503	Benin	2.267
504	**Jonesboro, AR**	2.266
505	Liechtenstein	2.248
506	Netherlands Antilles	2.061
507	**Pine Bluff, AR**	2.052
508	Malawi	1.994
509	**Great Falls, MT**	1.978
510	Fiji	1.971
511	Aruba	1.962
512	Rwanda	1.947
513	Armenia	1.919
514	**Pocatello, ID**	1.906
515	**Enid, OK**	1.696
516	Somalia	1.672
517	Niger	1.592
518	Cayman Islands	1.586
519	Chad	1.467
520	Kyrgyzstan	1.304
521	Moldova	1.300
522	Togo	1.294
523	Afghanistan	1.271
524	Swaziland	1.223
525	Lao People's Dem. Repub.	1.088
526	Mongolia	1.029
527	Equatorial Guinea	1.010
528	Tajikistan	1.010
529	Central African Republic	0.989
530	Lesotho	0.946
531	Mauritania	0.905
532	Burundi	0.771
533	Guyana	0.749
534	Eritrea	0.748
535	Belize	0.736
536	Saint Lucia	0.701
537	Antigua & Barbuda	0.687
538	Suriname	0.649
539	Seychelles	0.628
540	Sierra Leone	0.591
541	Djibouti	0.561
542	Cape Verde	0.513

Gross Product, 2000 (US$ Billions, Current)		
Rank	Country, State, or **Metro Area**	Gross Product
543	Bhutan	0.470
544	Gambia	0.448
545	Maldives	0.443
546	Grenada	0.417
547	Solomon Islands	0.386
548	Saint Kitts and Nevis	0.325
549	Saint Vincent and the Grenadines	0.325
550	Dominica	0.282
551	Guinea-Bissau	0.225
552	Vanuatu	0.225
553	Samoa	0.193
554	Comoros	0.177
555	Sao Tome and Principe	0.049

Table 10 - Metro Area Shares of U.S. Production

Shares of U.S. Gross Product (2000) (Billions)	Metro Areas	Rest of United States	United States
Agriculture, Forestry, Fishing	$49	$95	$144
Percentage	34%	66%	
Mining	$102	$72	$174
Percentage	58%	42%	
Construction	$371	$61	$432
Percentage	86%	14%	
Manufacturing	$1,264	$346	$1,610
Percentage	79%	21%	
Transportation & Utilities	$744	$108	$852
Percentage	87%	13%	
Trade	$1,354	$239	$1,586
Percentage	85%	15%	
Financial Services	$1,767	$155	$1,922
Percentage	92%	8%	
Services	$1,895	$232	$2,127
Percentage	89%	11%	
Government	$929	$225	$1,154
Percentage	81%	19%	

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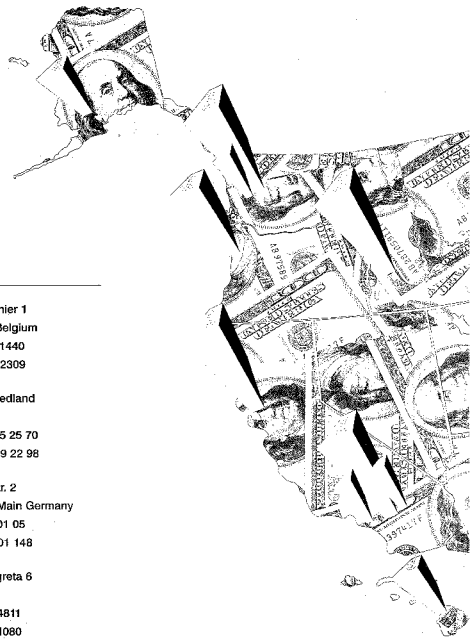

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DRI·WEFA

STATEMENT OF HON. BILL CAMPBELL, MAYOR, ATLANTA, GA

Good afternoon Mr. Chairman and members of the Transportation and Infrastructure Subcommittee. I am Bill Campbell, Mayor of the city of Atlanta. It is a pleasure to come before you to discuss Atlanta's infrastructure needs and the Federal role in investing in local communities.

I am testifying today principally on behalf of the city of Atlanta. At the U.S. Conference of Mayors, I chair the Transportation and Communications Committee, a position that I have held throughout congressional deliberations of TEA–21 and AIR–21. In this capacity, I can offer some additional perspectives on the challenges before the Nation in addressing our infrastructure needs.

I am also pleased to join my colleagues, Mayors Morial, Goodman, Streeter and Williams, to address the demands placed on city infrastructure systems and the solutions that the Federal Government can pursue in collaboration with cities and other municipalities.

My point of reference in my remarks is Atlanta, and the broader Atlanta metropolitan region, but the problems that I express are fairly typical of urban areas around the country. Many other areas share some the same challenges in dealing with growing demands for infrastructure investment.

At the same time, we are somewhat of an indicator of what lies ahead for others. Among the largest metropolitan areas in the country, we had the highest rate of growth over the last decade. We grew much faster than the national economy, growing at an average annual rate of 8.4 percent, increasing our gross metropolitan product (GMP) from $73.4 billion in 1990 to $164.2 billion in 2000. Mayor Morial will talk about metropolitan economies in more detail and the importance of these regions to U.S. economic growth.

OVERVIEW

Mr. Chairman, I am proud to say that Atlanta is thriving. Over the course of 10 years, the population of the metropolitan area, which consists of 10 counties, has grown from 2.5 million to 3.4 million. These individuals represent a wide range of income, racial and ethnic diversity. They are the foundation of our vibrant community.

Growth in the region has brought greater economic development, housing and job opportunities to the city of Atlanta. We are a leader in global productivity, serving as the anchor of economic activity in the South. To maintain this level of balanced growth requires not only strong business investments, but also sufficient and modernized infrastructure. As we experience this unprecedented expansion, we are challenged to provide solutions through our surface transportation, aviation and water infrastructure systems. Recognizing the interdependency and interconnectivity of our success on the local level with national policy priorities, I offer ways to strengthen the Federal investment in local infrastructure needs.

SURFACE TRANSPORTATION

Our region, like Los Angeles and a number of other cities, is facing the challenge of reducing severe traffic congestion on the highways and roads. In Atlanta, we have moved aggressively and decisively toward building transportation alternatives to protect the environment and increase the quality of life of residents.

One such alternative is rail. In Atlanta we are using MARTA—our transit system, buses, and eventually, commuter and high-speed rail to move people to and from their jobs and recreation while simultaneously reducing pollution and congestion. This involves coordination on a local, regional, and State level. Plans are in place for an intermodal facility that will serve as the hub of transportation, residential and commercial activity for the downtown.

Our success is strengthened by the cooperation of the citizens of Atlanta who are making lifestyle adjustments to embrace alternative modes of travel. It is because of this changing culture that the vision for rail development must expand beyond the boundaries of the City. High-speed rail provides the mechanism for linking communities and addressing the impediments to effective growth.

The State of Georgia, Federal Railroad Administration, Norfolk Southern and Amtrak are working together to roll out high-speed rail throughout the State. They are planning to build a line that will connect Atlanta to Macon and, ultimately, Savannah. We are pleased that Congress has provided the initial funds to study the development of this line.

High-speed rail would significantly reduce travel times. It is estimated that Amtrak's connection between Atlanta and Birmingham currently takes 3 hours. With high speed rail the trip time can be reduced to 2 hours by 2010. Atlanta to Charlotte

is currently 5.5 hours, and is expected to be reduced to 3.5 hours. This is a major difference and will provide further incentive for people to ride rail versus driving.

I strongly support the High Speed Rail Act and urge Congress to pass the legislation to improve the efficiency of our overall transportation system and reduce congestion on our roads and in our skies.

AVIATION

We must not only address congestion on the ground but deal with gridlock in the air.

The fact that the Nation's flying public is facing gridlock in the skies is obvious to everyone. Federal Aviation Administration forecasts indicate that airline passenger traffic will increase 59 percent to a billion passengers annually by 2010. Those forecasts suggest further that some 70 percent of that traffic growth will occur at the Nation's 28 largest airports. Ironically, these are the very airports for which the primary cause of delays is lack of capacity, especially runway capacity.

Atlanta Hartsfield International is now the busiest airport in the world, surpassing even Chicago O'Hare. Hartsfield handles 6 percent of the Nation's passengers annually and generates $15 billion in the Atlanta metro region. Hartsfield is also the most delay-impacted airport in the country with 9 minutes of delay per flight and will increase to 15 to 20 minutes per flight in 2005 without the construction of our new fifth runway, which we have broke ground on this past April. The fifth runway is part of a $5.4 billion Capitol Improvement Plan. These delay times cost the airlines operating at Hartsfield over $250 million in the year 2000 alone. Let's not stop there.

Congress helped by passing AIR–21 last year, increasing the Airport Improvement Fund to $3 billion annually, and by allowing airports the option of increasing the local Passenger Facility Charge for infrastructure and noise abatement projects. I was pleased to see the House and Senate Appropriations Committees in the Fiscal Year 2002 FAA Appropriations fully fund the AIP program by honoring the so-called "firewalls" erected around the Aviation Trust Fund in AIR–21. Let's not stop there.

I would urge the Congress to address the impediments to reducing airway gridlock by passing environmental streamlining legislation as proposed by the Airport Council and American Association of Airport Executives that will expedite review of runway expansion proposals. We must not circumvent our environmental approval process. However, the problem of taking 10 years to build a new runway must be addressed, and these streamlining proposals have great merit in my judgment.

WATER RESOURCES

Along with the growth on the roads and in the air, we are also facing challenges to our water infrastructure system.

Four years ago, I developed the Regional Atlanta Watershed Program, a comprehensive regional approach to resolve our water infrastructure needs by addressing the environmental quality and supply of the urban watershed, rivers and streams. This cooperation has expanded, through the efforts of Governor Barnes, into the North Metro Atlanta Regional Waste District. Through the district, water resource needs will further be coordinated and addressed on a regional basis.

In addition, the U.S. Army Corps of Engineers is completing a study to carry out water-related environmental infrastructure and resource protection development projects. We are very pleased with our partnership and look forward to working with this subcommittee in the next year to move toward the construction phase.

The efforts of the Regional Atlanta Watershed Program involve protecting the quality of the Chattahoochee River, one of the most heavily used water resources in the State of Georgia. It has a finite supply of water. Therefore, the health of this resource, lakes and riparian streambanks is vital not only to Georgia, but also to our downstream neighbors in Alabama and Florida.

Rapid growth has significantly increased water withdrawals from surface and groundwater resources, resulting in greater demands on the supply. This trend is expected to continue. In addition, increased pollution from stormwater runoff from roofs, roads, driveways and parking lots has transformed the watershed. This degradation is exacerbated by wet weather overflows from old, combined sewers that drain into community tributaries.

Since 1990, we have spent $1 billion to construct and expand wastewater and stormwater collection, treatment and control facilities to meet Federal and State environmental regulations. We have implemented innovative re-engineering and strategic outsourcing programs to reduce operating costs. Our innovative approach to wastewater treatment has helped reduce costs for capital facilities such as phos-

phorus control programs. We spent an additional $2.3 million for watershed protection projects. However, in order to comply with EPA Federal consent decree for our SSO and CSO programs, we estimate that we will need over $3.2 billion over the next 13 years to upgrade our system. This is an astounding amount.

This will put a serious burden on the City's budget. The median family income for Atlanta is approximately $36,950, with 24 percent of our residents making less than $15,000 per year. While there are approximately 500,000 people who reside in the city of Atlanta, over 1.5 million come into the City each day to work or for recreation. I am sure you can see the challenge we face. And we are not alone. There is estimated to be more than $300 billion in wastewater infrastructure needs and $ 1 trillion in total water resource demands in cities across the country.

Mr. Chairman, I am asking Congress to provide greater assistance provide greater assistance with both low interest loans, grants and technical resources to communities to address these urgent and demanding water resource needs. I would hope that Congress could give greater authority and resources to the Army Corps of Engineers, who are experts in dealing with water issues, to reduce costs, prevent flooding and habitat degradation and address the needs of our aging sewer infrastructure. The direct intervention and assistance from your committee and your colleagues in the Senate and House will help maintain both the sustainable development of the metro-Atlanta region and strong quality of life for citizens and visitors. Importantly, this will ensure that the economic engine of the Southeast can continue to provide good jobs and services for our people.

SUMMARY

As my colleagues from the other cities have expressed, we share many common problems. Mr. Chairman, I wanted to underscore one of the points that Mayor Morial emphasized in his statement dealing with the importance of local infrastructure to the Nation's economic prosperity. As a leader of a region that has helped drive our Nation's economic growth, I would urge you to recognize the importance of an expanded Federal partnership on infrastructure investment to your own interests. These projects are not only crucial to our local and regional areas but they are to the investment that will help sustain the Nation's future economic prosperity.

Again, let me thank you, Mr. Chairman and the members of the subcommittee, for your leadership and recognition of the importance of this issue.

Thank you for this opportunity to appear before you today.

STATEMENT OF HON. OSCAR GOODMAN, MAYOR, LAS VEGAS, NV

Good afternoon Mr. Chairman and members of the committee. I am Oscar Goodman, Mayor of Las Vegas, NV. It is a pleasure to come before you today to testify on the infrastructure and transportation needs of southern Nevada and the city of Las Vegas.

Over the last decade, the City and the metropolitan area of southern Nevada grew the fastest of all the cities our size. Yet, we are simultaneously ranked as the 14th densest major metropolitan area in the country. In southern Nevada, we are doing a good job at balancing growth and economic strength and vitality with sound infrastructure and community development. In the next two decades, I expect we will continue to grow at a phenomenal pace and we will successfully meet the new challenges of growth head on.

We need only to look back at the last decade to see how ingenuity, hard work and strong partnerships can work to make our future in Las Vegas bright. We just recently celebrated the 10th anniversary of the creation of the Southern Nevada Water Authority (SNWA). The SNWA is a regional leader, and I assert a national leader, in water quality, conservation and resource planning. Ten years ago water resources and quality was the most pressing issue for our valley. Today, providing safe and reliable water resources is still a significant on-going public concern, yet we have made significant progress in banking water resources, constructing a sound water delivery system, and achieving higher levels of conservation. This success is in part due to significant community leadership, intergovernmental coordination at the local level, and support from neighboring States and the Federal Government.

It is this kind of partnership between local communities and the Federal Government that I would like to focus my comments on today. I truly believe many of our accomplishments and future accomplishments in southern Nevada hinge on a successful partnership between our local communities and the Federal Government. Similarly, the National League of Cities is pursuing its "Investing in Communities" agenda. Cities around the country struggle to build and maintain infrastructure and

to find the resources to perform this public service adequately. So, southern Nevada is not alone in the infrastructure race.

I mentioned our major issue of the last decade was water—for the next decade and possibly longer, the issue for southern Nevada is air quality. Air quality will change the way we approach the issue of transportation in southern Nevada. We have focused significant Federal, State and local dollars to improve roadways, and we certainly need to. In comparison to other metropolitan areas, we do not have sufficient roadways. In fact our freeway density is half that of Los Angeles and Orange County. Just recently, we identified approximately $7.6 billion in roadway and transit needs for our valley in the next 20 years. However, we will need to shift toward alternative modes of transportation to best preserve our air quality. There is no way we can build enough roadways to accommodate our population. Therefore, we are pursuing monorail lines, trails systems, bus only lanes on major roadways, and a high-speed train to southern California.

The monorail alone is a significant investment. The project's total investment will be approximately $575 million for a 5-mile system connecting the Las Vegas strip to downtown. The unique nature of this project is that a majority of the funding comes from the private sector.

Transportation is not the only infrastructure area in need of great attention. We still face significant investments in our water and wastewater systems. The public is becoming more and more acutely aware of the condition of our water and sewer lines. This infrastructure is often taken for granted, "out of sight, out of mind." Many of the water and sewer systems around the country were built in the early 1900's. As a result, over the next 10 to 20 years many of these investments will be reaching the limit of their capacity and working condition. In addition to replacement of these older systems, Las Vegas will continue to invest in extending our current system to accommodate new growth. Within the next 20 years, the Las Vegas valley will face a treatment capacity deficit of approximately 144 million gallons of wastewater per day. The cost to fill that gap is estimated at approximately $1.2 billion.

Obviously, these are not little ticket items. They are significant investments. Congress invested significant Federal dollars in measures such as TEA–21, Air—21 and hopefully will invest in a water and wastewater infrastructure bill this session or in a future Congress. I cannot stress enough how having those Federal dollars available to supplement local investments can make or break many significant public projects. Whether it's the innovative public-private monorail system in Las Vegas, or the I–15 widening project between Barstow and Las Vegas, those Federal dollars are key to the success of such projects.

In addition to being Mayor, I serve or have served on numerous regional governing boards that manage many of the regional projects I mentioned here today. I feel I am in a unique position to share with the committee a well-rounded perspective on the needs of southern Nevada. I encourage you, if at all possible, to keep the level of investment of Federal dollars in State and local projects from dwindling. As a country, we can be most successful working together and leveraging the public tax dollar to the benefit of all its citizens through these kinds of public investments. All of us want clean air to breathe, safe water to drink and efficient transportations systems. We have and can continue to address these significant public issues with a strong partnership between the Federal and local governments if we all keep those goals in mind.

Senate Committee
on
Environment and Public Works

City of Las Vegas
Infrastructure Needs

July 23, 2001
3:00 p.m.
Dirksen Senate Office Building, Room 406

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1) Report: City of Las Vegas
Departament of Public Works -
Infrastructure Needs for Southern Nevada

2) Monorail Project

3) Super Speed Train (SST) Project

4) Report: Southern Nevada Water Authority -
Improvement Projects

Report:

City of Las Vegas
Department of Public Works

"Infrastructure Needs for Southern Nevada"

City of Las Vegas
Department of Public Works

Infrastructure Plans for Southern Nevada

Transportation

Sanitary Sewer

Flood Control

July 2001

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I. Executive Summary

As one of the nation's fastest growing areas, Southern Nevada's transportation infrastructure needs far outpace the ability of local municipalities to keep up with that growth.

The region has experienced an almost 7% rise in population each year, over the last 10 years, increasing from about 750,000 people in 1990 to 1,430,000 in the year 2000. Southern Nevada's population is expected to increase to 2,300,000 in 2020.

Transportation

The Clark County Regional Transportation Commission funds Las Vegas' major roadway projects by motor vehicle fuel tax and sales tax. Over the next 20 years the RTC fuel tax will fund about $1.7 billion in roadway projects. The fuel tax revenue generated to pay for these improvements is currently about $60 million per year.

The region's transportation needs far outweigh the ability to fund transportation improvement projects. A recent RTC Needs Assessment for the Las Vegas Valley indicated an additional $7.6 billion in transportation improvement projects that are identified yet no funding source is available. At the present time, the RTC has the ability to fund only about 18% of the total $9.3 billion that is needed for transportation projects over the next 20 years - - representing a deficit of about $380 million per year.

Revenues for construction and maintenance of publicly funded transportation facilities are also generated through motor vehicle fuel taxes. It is estimated that approximately $0.5 billion will be generated for maintenance and reconstruction of existing facilities. However, another $1 billion will be needed for maintenance and reconstruction of existing facilities, leaving this shortfall for a 20 year period. This leaves a total transportation related funding deficit of $8.1 billion ($7.6 + $0.5) in the Las Vegas Valley.

It should also be noted that fuel taxes do not rise with inflation. As motor vehicles become more fuel-efficient and more alternate fuels are used, the taxes generated are going to decline.

Sanitary Sewer Collection System

The City of Las Vegas will need to expand the wastewater collection system some 70 miles at a cost of approximately $134 million, and treatment plant capacity will need to be doubled at a cost of about $500 million. This assumes that there will be no significant changes in environmental regulations for requirements that may affect the effluent discharge quality. If there are changes, these costs will escalate.

This also does not include the more than $350 million that the three discharging agencies estimate it will cost to construct a pipeline system to take wastewater treatment out of the Las Vegas Wash.

Regional Flood Control

The 1996 Clark County Regional Flood Control District Master Plan identified $1 billion in proposed flood control project construction throughout the Las Vegas Valley. With the current revenue stream, it will take more than 30 years, at best, to complete these facilities with the ¼ cent sales tax.

It should be noted that Las Vegas experienced a federal disaster declaration in 1999 for $20 million in flood damages. Even with 15 years of construction of regional projects, the valley is still experiencing significant flood damage.

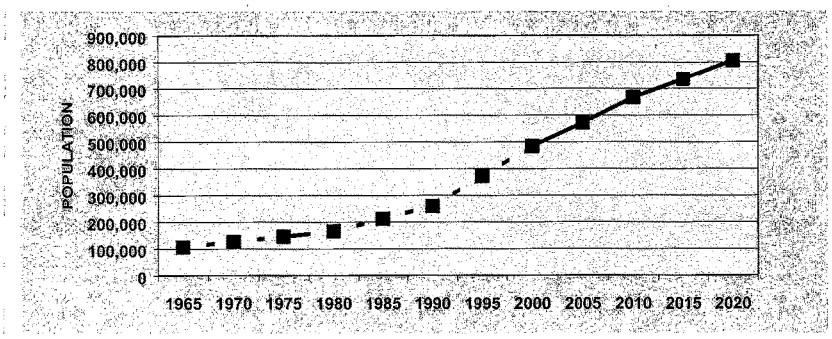
II. Introduction

Nevada is ranked #1 among states for % population change: + 50.6%
Second place, Arizona, grew by 30.4%
Nevada ranks 11th among states for total population increase: + 607,000

Las Vegas population in 1990: 258,295
Las Vegas population in 1999: 466,312
This is an 80.5% increase
The average annual population change is a 6.8% increase.

Between 1990 and 1999, the City of Las Vegas added one housing unit and 2.5 people, per hour, around-the-clock.

Population: Las Vegas, Nevada



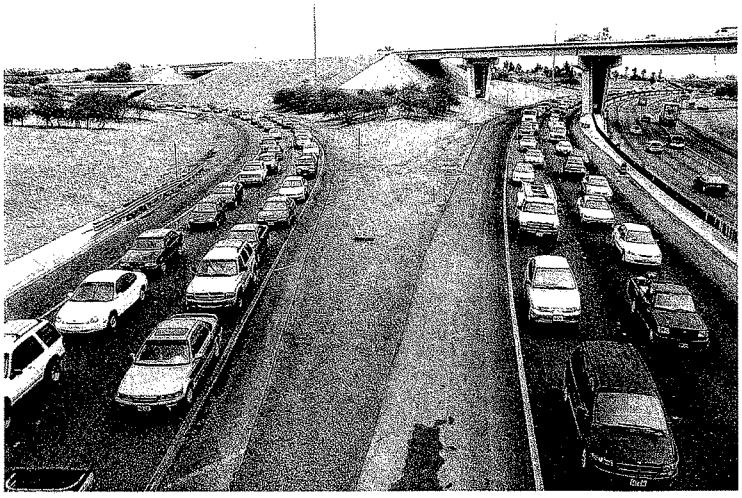
Las Vegas Population Projections

- 2005 570,000
- 2010 665,000
- 2015 735,000
- 2020 805,000

These population projections are for residents within Las Vegas city limits and do not take into consideration similar growth trends experienced in Clark County and neighboring cities, and bourgeoning growth in visitor volume.

Transportation Demands

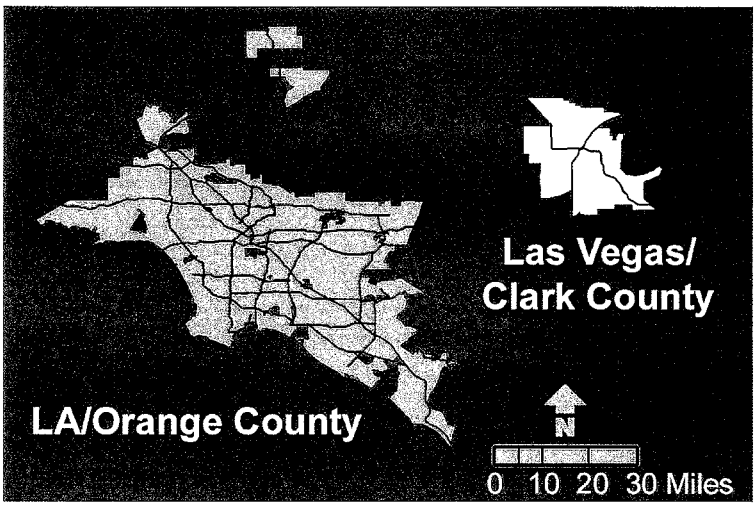
US Hwy. 95 & Summerlin Parkway Area



US Highway 95 was built in 1979 and was expected to accommodate 33,800 vehicles by the year 2000. Today, this freeway is used by a minimum of 116,250 vehicles per day in Las Vegas, with as many as 175,005 vehicles a day, on the freeway at some locations.

This is 3½ times more traffic than the freeway was projected to accommodate at this point in time, and is just one example, of many, that demonstrates the demands being placed on Southern Nevada's transportation system today.

Freeway Density Comparisons



Comparison of Los Angeles/Orange County Metro Area
With Las Vegas Metro Area Freeway Densities

Las Vegas Metropolitan Freeway System:	57.39 miles
Las Vegas Metro Land Area with 1997 Population Density >400 sq. miles:	359.0 sq. miles
Las Vegas Metro Area Freeway Density = 57.39/359.0 =	160 freeway miles/ sq. miles
Los Angeles/Orange County Freeway System:	644.8 miles
Land Area with Population Density > 400 sq. miles:	1959.9 sq. miles
Freeway Density = 644.8 miles/1959.9 sq. miles =	328 freeway miles/sq. miles

A Multi-Jurisdictional Approach

Multi-jurisdictional cooperation has been an effective approach as far as funding Southern Nevada's critically needed infrastructure projects.

The Regional Transportation Commission of Southern Nevada (RTC) was created by the Nevada State Legislature in 1965. The RTC is the regional governmental entity which directs the expenditure of funds generated by the Motor Vehicle Fuel Tax for regional street and highway construction, oversees the Federally mandated transportation planning process for the Las Vegas Urban Area and provides public mass transportation within Clark County.

The Nevada Legislature authorized creation of the Clark County Regional Flood Control District (RFCD) in 1985, to solve flooding problems, to regulate land use in flood hazard areas, to fund and coordinate construction of flood control facilities, and to develop and contribute to the funding of a maintenance program for master plan flood control facilities. A quarter cent sales tax, approved by voters in 1986, is the primary funding source for construction of regional flood control facilities in a service area that includes the incorporated cities of Boulder City, Henderson, Las Vegas, Mesquite and North Las Vegas, and Clark County.

Taking an area-wide approach to environmental concerns, the three agencies responsible for treating Southern Nevada's wastewater - the City of Las Vegas, City of Henderson and Clark County Sanitation District - named their collective efforts the Clean Water Coalition in 1999.

III. Transportation

In June 2001, the Regional Transportation Commission conducted an assessment of Southern Nevada's long-term transportation infrastructure needs over the next 5, 10, and 20 years. Following are the results of that assessment:

TRANSPORATION NEEDS ASSESSMENT				
	Project Programming			
Projects	5 Year	10 Year	20 Year	TOTAL
Streets & Highways				
Clark County	$ 96,000,000	$ 747,000,000	$ 100,000,000	$ 943,000,000
Henderson	56,900,000	130,600,000	5,100,000	192,600,000
Las Vegas	**250,500,000**	**212,000,000**	**15,000,000**	**477,500,000**
No. Las Vegas	25,000,000	15,000,000	57,000,000	97,000,000
Nevada Dept of Transportation	140,000,000	3,300,000,000	35,000,000	3,475,000,000
I-15 Northeast Corridor Study Recommendation		425,000,000	510,000,000	935,000,000
Transit	145,688,000	451,125,000	330,000,000	926,813,000
I-15 Northeast Corridor Study Recommendation			301,000,000	301,000,000
Trails	50,000,000	30,000,000	20,000,000	100,000,000
Intelligent Trans System	82,500,000	42,800,000	68,000,000	193,300,000
GRAND TOTAL	**$846,588,000**	**$5,353,525,000**	**$1,441,100,000**	**$7,641,213,000**

Monorail

Currently under construction is a monorail that will run approximately three miles adjacent to the Las Vegas strip. The City of Las Vegas would like to extend the monorail an additional two miles to Downtown Las Vegas. The entire project is estimated to cost $575 million, or $115 million per mile. The majority of money will come from the private sector - - making this public transportation monorail project extremely unique in the United States.

IV. Sanitary Sewer

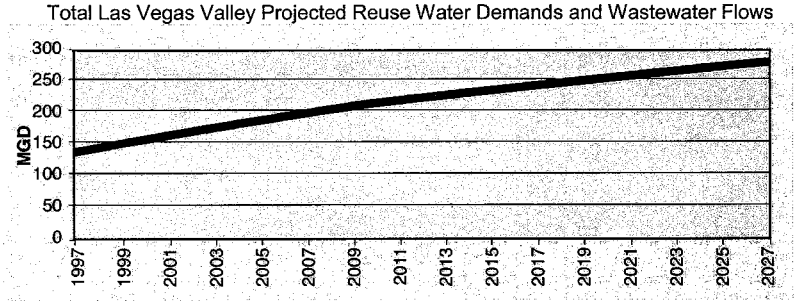
The three agencies responsible for wastewater treatment in the Las Vegas Valley are the City of Henderson, City of Las Vegas and the Clark County Sanitation District.

In order to accommodate the needs of a fast growing resident population and a growing volume of visitors (some 34 million visitors annually), the discharging agencies are challenged to study new approaches for managing these limited resources.

Needs Assessment Study

A Needs Assessment Study conducted in 1997, indicates that by the year 2027, the Las Vegas Valley's projected influent wastewater flow is expected to be 282 million gallons of wastewater per day (MGD), or more than double the current flow.

Total Las Vegas Valley Projected Reuse Water Demands and Wastewater Flows



The study also indicates that Southern Nevada will be facing a capacity deficit of 144 MGD, if wastewater treatment facilities remain at current capacity. The cost to construct additional infrastructure to meet projected capacity needs, is approximately $1.2 billion.

Future Wastewater Facility Needs

Discharger	Nominal Average Annual Capacity, mgd	Capacity Under Current Conditions for Discharge to Las Vegas Wash, mgd	Projected Capacity Needs in 2027 for Discharge to Las Vegas Wash, mgd	Capacity Deficit, mgd
City of Henderson	19.5	9.3	40	31
City of Las Vegas	**57**	**49**	**111**	**62**
Clark County Sanitation District	88	80	131	51
Total	**165**	**138**	**282**	**144**

Water Reclamation

In a recently completed Las Vegas Area-Wide Reuse Study, the first of its kind, it was determined that water reclamation is critical to the Las Vegas Valley. In the year 2003, the valley will be able to supply 24 MGD of reuse water, yet the expected demand is 56 MGD. To provide the infrastructure to treat and distribute the additional 32 MGD the estimated cost is $223 million.

Alternate Discharge Study

Another important issue is water quality and the location of wastewater discharge in relation to the Southern Nevada Water Authority's drinking water intake some six miles away.

Last year, the discharging agencies contracted for an Alternate Discharge Study to be conducted to identify feasible alternate discharge strategies to address the growing volume of highly treated effluent that is discharged into the Las Vegas Wash.

Results of the 12-month study determined that an ultimate build-out of a pipeline system to take wastewater treatment out of the Las Vegas Wash and pipe it to a controlled environment near Hoover Dam - - a distance of approximately 20 miles, the cost in today's dollars would be approximately $364.4 million based on flows for the year 2027 or $377.4 million based on flows in 2047.

City of Las Vegas Expansion of Wastewater Treatment Services

The City's Water Pollution Control facility is in the midst of a five-year, $98 million improvement project to expand existing facilities to accommodate a capacity of 91 MGD. Started in late 1998 and slated for completion in early 2003, a series of projects are in various stages of progress, to meet the demands of future growth while remaining a good community neighbor.

The City's new $37 million Northwest Water Resource Center opened July 6, 2001. Designed to treat up to 10 MGD, this is the largest purpose built reuse facility in Southern Nevada. By partnering with the Las Vegas Valley Water District, reclaimed water is treated on site so that it can be used for golf course irrigation, thus eliminating the practice of using drinking water for these purposes. This will also decrease the amount of wastewater flows that are treated and returned to the Las Vegas Wash.

The City's inventory of wastewater treatment facilities also includes a 1 MGD facility that provides reuse water to nearby golf courses.

V. Flood Control

The Regional Flood Control District allocates funding to local entities for construction of Southern Nevada's flood control facilities.

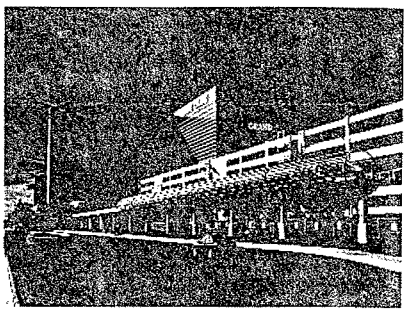
Approximately $1 billion in flood control improvements still need to be constructed in Southern Nevada, according to the Flood Control District.

Construction plans are complete and ready to go to bid for 17 flood control projects in Southern Nevada, totaling $87 million, yet the RFCD has no funds available to construct these improvements.

At the present time, the RFCD has exhausted its revenue source. As a result, local entities are advancing much needed flood control improvement projects out of their own limited budgets and have been advised that it may take as long as five years for the RFCD to reimburse these entities.

MONORAIL

FACT SHEET



- The private section of the monorail is being built through local, private funding and the public phase will be built with federal funding and a local match. The RTC has been a key player in securing funds and developing and planning the project.

- The total cost of the private section of the monorail will be approximately $350 million. The first phase of the public section of the monorail will cost approximately $220 million.

- The private section of the monorail is expected to reach completion by First Quarter 2004. The public phase of the monorail will not begin until 2003. A final completion date of the project is unknown.

- The private section and phase one of the public section will be just under 6 miles long. The private section will be approximately 4 miles from the MGM Grand Hotel Casino to the Sahara Hotel Casino, while the first phase of the public section will be 2.1 miles from the Sahara to the Fremont Street Experience. A second public phase is being considered to extend the monorail along either Riviera Drive or Convention Center Drive.

- Stops will include MGM Grand, Bally's/Paris, Flamingo, Harrah's/Imperial Palace, Las Vegas Convention Center, Las Vegas Hilton, Sahara, Stratosphere Tower, Fremont Street and Cashman Field.

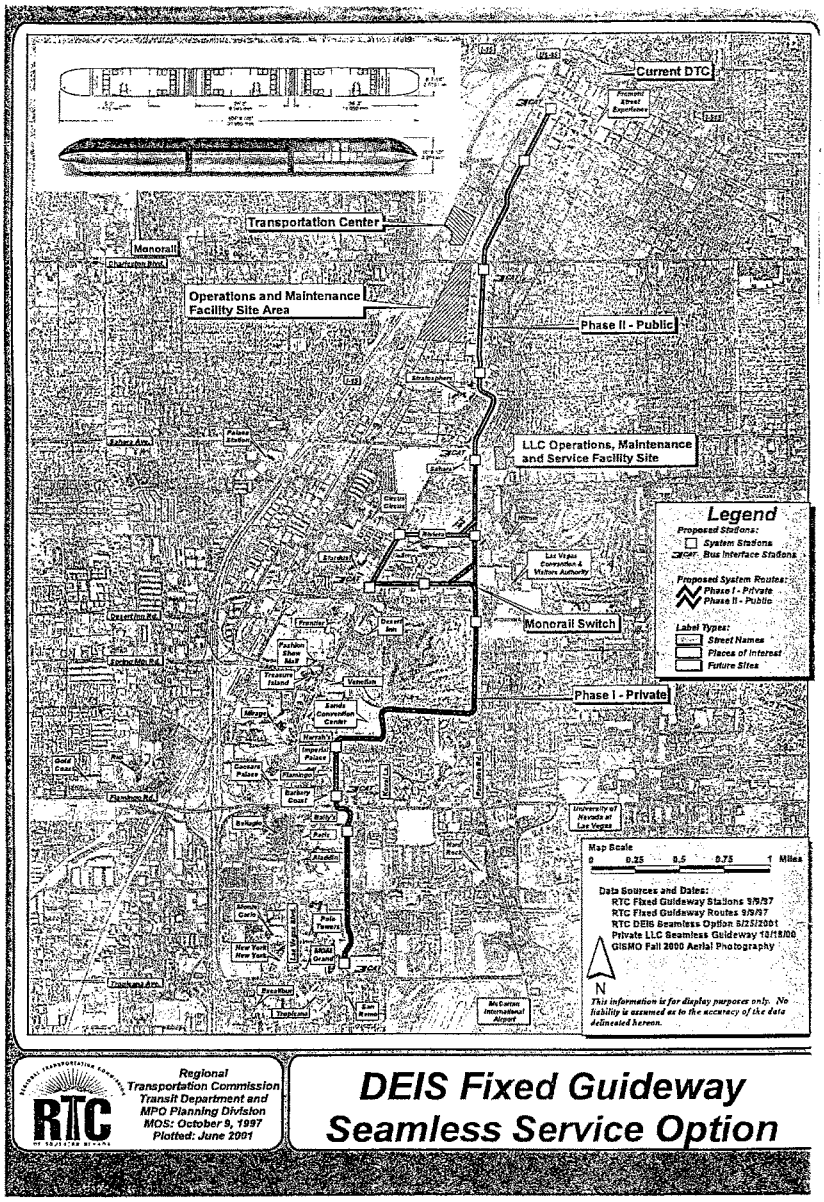
- Monorail stations will interface with the CAT bus system for valley-wide use.

- At this time the private developer, Las Vegas Monorail Corporation, is estimating their cost per ride at $2.50. This fare has not been finalized for the entire public/private system.

- Passengers will be able to purchase passes to be used as payment on the monorail or pay a cash fare.

- Passes will be purchased at the stations prior to boarding the monorail.

RTC
600 S. Grand Central Parkway • Suite 350 Las Vegas, Nevada 89106-4512
702-676-1500 • Fax: 702-676-1518


Current DTC
Transportation Center
Monorail
Operations and Maintenance Facility Site Area
Phase II - Public
LLC Operations, Maintenance and Service Facility Site
Monorail Switch
Phase I - Private
Legend
Proposed Stations:
System Stations
Bus Interface Stations
Proposed System Routes:
Phase I - Private
Phase II - Public
Label Types:
Street Names
Places of Interest
Future Sites
Map Scale
0 0.25 0.5 0.75 1 Miles
Data Sources and Dates:
RTC Fixed Guideway Stations 9/9/97
RTC Fixed Guideway Routes 9/9/97
RTC DEIS Seamless Option 5/25/2001
Private LLC Seamless Guideway 10/18/00
GISMO Fall 2000 Aerial Photography
N
This information is for display purposes only. No liability is assumed as to the accuracy of the data delineated hereon.
Regional Transportation Commission
Transit Department and
MPO Planning Division
MOS: October 9, 1997
Plotted: June 2001
RTC
DEIS Fixed Guideway
Seamless Service Option

AMERICAN MAGLINE GROUP
A Guideway To The Future

Las Vegas to Anaheim
I-15 Corridor
Maglev Project

Testimony offered to the U.S. House of Representatives

Committee on Transportation and Infrastructure

Railroad Subcommittee

By: M. Neil Cummings, Esq.
On Behalf of: American Magline Group
Title: President

Date: Thursday, June 21, 2001
Time: 10:00 A.M.
Location: 2167 Rayburn House Office Building
Washington, DC 20515

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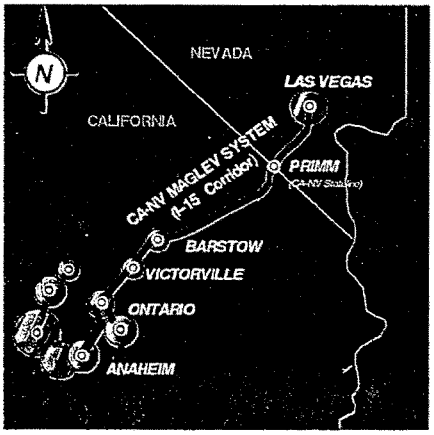
California-Nevada
Super Speed Train
Commission

AMERICAN MAGLINE GROUP
A Guideway To The Future

California–Nevada Interstate Maglev Project



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American Magline Group: Good morning. My name is Neil Cummings and I appreciate the opportunity to testify before you today on behalf of the American Magline Group (AMG), a consortium of major American companies dedicated to the building and deployment in the United States of an Americanized version of the *Transrapid*™ Maglev technology. This technology has been developed in Germany over the past 20 years and is fully certified and approved for passenger use by the German Ministry of Transport.

The AMG team members include General Atomics (magnetic levitation propulsion system), Hirschfeld Steel Company (steel fabrication and Maglev guideway design and construction), Parsons Transportation Group (project management and engineering), Solomon Smith Barney (financial planning: private investment tax exempt bond issuance), URS Greiner (investment-grade ridership and revenue forecast) and Transrapid International-USA (technology transfer/intellectual property provider).

California-Nevada Super Speed Train Commission (Public/Private Partnership): Over the past ten years, the AMG has focused its deployment efforts on the corridor most likely, and best suited to demonstrate this 21st Century technology in the near term. As a result, the AMG has successfully developed the public-private partnership necessary to design, finance, build and operate the 300(+)-mph *Transrapid*™ Maglev system along the heavily congested I-15 corridor between Anaheim, California, and Las Vegas, Nevada, via the California Inland Empire cities of Ontario, Victorville and Barstow.

The AMG's public partner is the California-Nevada Super Speed Train Commission, a California non-profit public benefit corporation formed in 1988 for the express purpose of promoting the development of, and issuing a franchise to build a 269-mile high speed train system capable of meeting the transportation, economic, energy and congestion needs and challenges of the 21st Century. With its focus on the 21st Century, the California-Nevada Commission, in 1991, selected the *Transrapid*™ Maglev technology as the ideal high speed ground transportation system for this corridor. In 1994, the California-Nevada Commission selected the American Magline Group as the ideal private partner to not only build this safe, fast and environmentally friendly technology, but, just as importantly, to assist the Commission in developing the type of wide ranging local, regional, state and federal support necessary to successfully develop a transportation infrastructure project of this magnitude.

When completed, this project will connect:

- The fastest growing city (Las Vegas) with the second largest county (Orange, California) in the United States;
- The No. 1 visitor's destination (Las Vegas) with the No. 4 visitor's destination (Orange, California) in the United States;
- The California Inland Empire (e.g., Ontario, Victorville and Barstow), which will experience growth equivalent to the addition of two Chicagos within the next ten years;

- Nationally significant business, residential and tourist centers which lie along a federal right-of-way (I-15) that is already heavily congested, and whose adjacent communities are already experiencing severe air quality challenges: today;
- Five major national/international passenger and/or air freight airports (McCarran and Ivanpah Valley, in Nevada, and Victorville, Ontario and John Wayne Airports, in California), two of which will reach capacity within the next ten years (McCarran and John Wayne Airports).

Project Support: As reflected in the comprehensive list attached to this testimony (Exhibit 1), this project has developed the strong support of the region's Congressional representatives in Washington, D.C., as well as the cities, counties and regional planning organizations along the entire 269-mile alignment.

Western Maglev Alliance: An alliance has been formed to bring this country's first revenue service Maglev system to the West. The Southern California Association of Governments (SCAG) – the governmental sponsor of a regional, urban Maglev system to operate within the Southern California Basin – has recently announced its support of "The First Forty Miles" as the one project in the United States which should receive any available near-term grant funding made available under the Maglev Deployment Program because, quite simply, (1) this is the project best suited, and best positioned, to be built first in the United States, and operational in the next 3-5 years; and (2) this project will serve as the catalyst for the development of Maglev throughout the West. The West is the region of the country best suited for, and most in need of, a new high speed transportation which can move people, and light freight, over distances of between 50-750 miles – at speeds comparable to the airplane – in an emissions free, safe, environmental friendly vehicle, on the ground!

The California-Nevada Commission has, in turn, announced its support for the further development of the Southern California regional Maglev system (sponsored by SCAG) through the immediate implementation of the EIS work necessary to develop a westernmost regional system to which "The First Forty Miles" can extend its reach over the next decade.

The Ideal Demonstration Project: The MDP presents this country with the opportunity to develop, in the near term, a prototype Maglev train system operating in "revenue service" which can serve as a model, in the long term, for the transport of passengers and air freight at speeds and efficiencies previously achievable only by boarding an airplane.

Meeting long-term challenges requires near-term investment in new technologies. The failed experiences in high speed trains over the past 20 years in Florida, Texas, California and Nevada show that the private sector cannot be expected to shoulder all the financial risks of building a new hi-tech transportation system.

Asking Maglev train manufacturers in 2001 to finance the building of Maglev guideways (i.e., tracks) if they want to sell their trains would be like President Eisenhower asking General Motors, Ford and Chrysler in the early 1950's to finance the building of the national interstate highway system if they want to sell their cars. Not only is the risk of investment too difficult for the private sector to accept, but the tremendous capital costs of building the guideway/highway infrastructure cannot possibly be financed from corporate profits. Whereas, Maglev technology can, as a result of its tremendous speed and low cost of operation, operate at a substantial profit, the initial capital cost of building the infrastructure (i.e., the guideways) on which the trains will operate must be borne by the federal government through a combination of grants, credit enhancements and tax-exempt investments.

Of course – if at all possible -- it is just as important for the federal government to minimize its investment risks as it is for the private sector to do so. Whereas, private corporations must report to their shareholders, the federal government must report to their taxpayers. This points up the importance of the federal government minimizing its financial risk by minimizing the initial capital costs of constructing the first Maglev system in America. Because, whereas the *Transrapid*™ Maglev technology has been proven through the transport of over 350,000 passengers over 500,000 km on the 20-mile test facility in Germany since its opening in 1984, this technology must still be "Americanized" and built in the United States in a commercial, revenue service setting – in the near term -- before the technology is deployed on a nationwide scale -- over the long term.

"The First Forty Miles" minimizes the federal government's risks and maximizes the potential rewards! Risks are minimized in four primary ways: (1) lowest possible capital costs for a 40-mile demonstration segment, (2) avoidance of unexpected environmental road blocks, (3) predictability of right-of-way access through use of an interstate highway corridor, and (4) predictability of achieving timely, on budget construction.

It is important to come to grips with the reality that under TEA-21's Maglev Deployment Program there is only $950 million "authorized," of which no funding has as of yet been "appropriated" for construction of a Maglev project. It will be very difficult to obtain the full $950 million appropriation. Furthermore, even if this appropriation is realized, the law mandates that the federal share can be no more than two-thirds of the total capital cost of building the first Maglev demonstration project. Even assuming, therefore, a one-third "local" or private funding match, a $950 million appropriation from the federal government will accommodate a demonstration project with a total capital construction cost of only approximately $1.4 billion.

In effect, the limited funding available under the Maglev Deployment Program limits the ideal demonstration project to one that is no more than 30 to 40 miles long, and that can be built at a capital cost of no more than $1.4 billion. Further complicating this funding limitation is the requirement of the Maglev Deployment Program that the

demonstration project selected must also be extendable so as to become, eventually, a much larger network.

It is respectfully submitted that the only viable project which meets the federal criteria and funding limitations of the MDP is "The First Forty Miles" of the 269-mile California-Nevada I-15 corridor project. By constructing a 40-mile starter segment between Las Vegas, Nevada, and the California-Nevada state line (at Primm), this project is uniquely positioned to demonstrate this 21st Century technology to the over 40 million people who visit Las Vegas each year from all parts of the United States, and the world.

Extensions of "The First Forty Miles" will follow the I-15 corridor to Barstow, Victorville, Ontario and Anaheim, California.[1] The completed 269-mile East-West network will eventually be an intermodal link to the San Francisco-Los Angeles-San Diego, North-South high speed ground transportation system currently being planned by the California High Speed Rail Authority.

"The First Forty Miles" presents a flat, low desert terrain which will pose no unexpected, or costly environmental or construction problems. No tunneling will be required. No homes or residents will be relocated. The 40(+) million visitors each year to Las Vegas, plus the passengers in the 25 million cars that travel on this stretch of the I-15 corridor each year (which is expected to double to at least 45 million vehicles within the next ten years) will have the opportunity to visualize and experience the advantages of traveling in 300-mph air conditioned comfort as an alternative to driving their cars. As energy prices, and congestion on the highways continue to escalate, this "Maglev" alternative will no longer be just a theoretical alternative – it will become a very real and accepted mode of transportation!

"The First Forty Miles" intends to complete its Environmental Impact Statement within 18 months. "The First Forty Miles" intends to be built and operating by the Fall of 2004, and fully tested, certified and in "revenue service" by the Fall of 2005.

"The First Forty Miles Is Eligible for Construction Funding Under the MDP: There are only two events called out for in the MDP statute. One is the selection of projects for "Preconstruction planning activities" (subparagraph (f)(1)), and the other is the selection of one project for "Final design, engineering and construction activities" (subparagraph (f)(2)).

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[1]An alternative to the immediate extension of "The First Forty Miles" westward to Barstow (a total distance of 163 miles) is the building of "The Second First Forty Miles" between Anaheim and Ontario. There is tremendous local support for this segment (which would then be extended eastward to meet the westward extensions from Nevada). However, there will be unavoidably delays in finalizing environmental, engineering and planning issues in such a heavily congested urban corridor. This necessarily increases risk, and delays the demonstration of the technology. This is why the Anaheim-to-Ontario segment is now planned to be "The Second First Forty Miles," not the first.

Because "The First Forty Miles" was one of the seven projects selected under the MDP for "Preconstruction planning activities" funding, it is now and shall remain eligible for both additional "Preconstruction planning" and "Final design, engineering and construction activities." The decision of former Secretary of Transportation Rodney Slater to award the remaining $14 million of contract authority available in FY2001 to the Baltimore-Washington and Pittsburgh projects ($7 million each) was simply an award of the remaining "Preconstruction planning activities" funding. "The First Forty Miles"--and the other six Maglev projects originally selected by the U.S. Department of Transportation, for that matter--remain eligible for any additional Preconstruction planning activities funding which may be appropriated by Congress in FY2002 or 2003, and for the "Final design, engineering and construction activities" for which the MDP has "authorized" $950 million. No decision was made by former Secretary Slater concerning the award of all or any part of the $950 million in "Final design, engineering and construction funding."

Realistically, however, Congress cannot be expected to "appropriate" any of the "authorized" $950 million in construction funding unless and until Congress is convinced that there is, in fact, a project that is, indeed, ready, willing and able to commence and complete construction in the "near term" (as required by the MDP). And, in appropriating such funding, Congress must also be convinced that the chosen construction project will not become a "big dig."

Conclusion: "The First Forty Miles" presents the ideal opportunity to Congress to minimize its risks, and maximize the potential benefits of the "near-term" construction of a Maglev system in the United States. The Chinese have already broken ground on a Maglev project in Beijing, utilizing the same *Transrapid*™ technology which the AMG intends to build along the I-15 corridor. The United States should be the first to demonstrate Maglev in revenue service. Respectfully, it is submitted that "The First Forty Miles" represents our best, and only chance to be first, on time and on budget![2]

Finally, it is worth emphasizing that while "The First Forty Miles" presents the ideal first demonstration project, the extended 269-mile I-15 corridor presents the perfect

---

[2] If Congress chooses to expand its search for an ideal first demonstration project to one that would cost between $3-$4 billion, then the advantages offered by the California-Nevada project become even more clear. For the same $3-$4 billion cost of building a 40-mile urban commuter Maglev line in Pittsburgh or Baltimore-Washington, the California-Nevada Commission can build the first 163 miles between Las Vegas, Nevada, and Barstow, California. Extending this system to Ontario, California, will only require an additional 76 miles, and an additional 34 miles from Ontario will extend the system to Anaheim.

Barstow is, in fact, strategically situated to serve as the Maglev gateway to the entire southwestern region of the United States. The map shows that, at Barstow, three major highways converge from the "Big Valley" of California to the North (i.e., Bakersfield, Fresno, Modesto and Stockton) (Highways 58/99); the urban sprawl of Los Angeles, Orange County and the "Inland Empire" to the West (I-15); and the rapidly expanding low desert of Phoenix and Tucson, Arizona, to the Southwest (Highway I-40). Eventually, from Barstow, Maglev can be extended not only West to Victorville, Ontario and Anaheim, California, but also down the I-15 (from Ontario) to San Diego in the far South, and up Highway 99 to Sacramento and San Francisco in the far North.

corridor in which to demonstrate the advantages of 300-mph Maglev travel. Maglev is not meant to be, nor designed to serve, the short-hop commuter market – which may be best left to 60-150-mph Amtrak or Metrolink service. Maglev is designed, in the ideal long-range setting, to provide a high speed, intercity ground transportation solution to relieve ever increasing airport and highway congestion, and pollution. Maglev provides this solution by moving people and light freight quickly and safely, in emissions-free vehicles, over longer distances. Given the choice of a 5-½-hour car ride or a 90-minute airplane flight from Anaheim to Las Vegas vs. an 86-minute Maglev train ride, which would you choose?

The Center for Business and Economic Research
University of Nevada, Las Vegas

The Impact of the Maglev Train on the Economy of Clark County and the State of Nevada

Prepared by

Mary Riddel, PhD
R. Keith Schwer, PhD

January 16, 2001

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The Center for Business and Economic Research is a university-based organization founded in 1975, providing research and analysis services to clients in both business and government. We combine the expertise of trained professionals with state-of-the-art technology to get results that help businesses keep a competitive edge and government agencies produce a quality product.

Previous studies conducted by the Center have become periodic research projects and publications that benefit the community. The *Southern Nevada Business Directory*, the *Historical Perspective of Southern Nevada*, *The Economic Outlook*, *Las Vegas Migration Statistics Summary*, *The Las Vegas MetropolitanHousing Market Conditions*, and the community survey for the *Las Vegas Perspective* have become established output for the past several years.

Dr. Mary Riddel is the Associate Director of the Center for Business and Economic Research and an Assistant Professor in the Economics Department. She received her Ph.D. and M.S. in Agricultural Economics from Colorado State University and a B.A. in economics from the University of Colorado. Prior to accepting the position at UNLV, she was the Senior Economist at the University of California Santa Barbara's Economic Forecast Project where she was responsible for regional economic and demographic forecasting. Professor Riddel has been involved in a wide range of projects including: *Economic Impact of the VentureStar Project on the Nevada Economy*, *A Critique of Grand Canyon Air-Tour Regulations*, *2000 and 2001 Clark County Population Forecasts*. Her work has appeared in *Journal of Regional Science*, *Choices*, *Environmental and Resource Economics*, and *Journal of Housing Economics*.

Dr. R. Keith Schwer is director of the Center for Business and Economic Research and a member of the economics faculty at the University of Nevada, Las Vegas. He received a bachelor's degree in statistics and a master's degree in economics from the University of Oklahoma. He received a Ph.D. in economics from the University of Maryland. He has over 25 years of experience in business and economics research in major university programs in Maryland, Nevada, Oklahoma, Tennessee, Vermont, and Wyoming.

Specializing in economic impact analysis, econometric modeling, feasibility analysis, and survey research, The Center and Dr. Schwer are recognized as authorities on the business and economic environment of Las Vegas, the state of Nevada, and the southwestern region. He authors many reports and conducts both basic and applied research. Some of his recent academic research has appeared in the *Review of Regional Studies, Journal of Economic Psychology, Annals of Tourism Research, Applied Economics, Gaming Law Review, Environment and Behavior, International Regional Science Review,* and *Social Science Review.*

Dr. Schwer is past president of the Association of University Business and Economic Research; and a member of the American Economic Association, the Western Economics Association, the Western Regional Science Association, past chairman of the Clark County Red Cross Board of Directors, the Southern Nevada Area Population Projections and Estimation Committee, and the Nevada KIDS COUNT Advisory Council.

Executive Summary

The federal government has authorized $950 million to construct a magnetic levitation (Maglev) demonstration project. The California-Nevada Super Speed Train Commission has entered into competition with six other states for this project. The train would operate along a forty miles of the I-15 right-of -way between Las Vegas and Primm. It would be part of a larger plan to provide Maglev service to Southern California thus relieving transportation congestion along the heavily traveled I-15 corridor.

The Southern Nevada economy will experience a significant positive impact as a result of both expenditures during construction and operation, and by the large number of new visitors expected to be drawn to Las Vegas by the uniqueness of the train:

- According to a ridership study previously done by URS Inc., the Maglev train is expected to draw 2.3 million new visitors each year.
- At the peak employment impact, the train will create 13,000 new jobs in the state.
- Over the 41-year period studied, between 2003 and 2046, gross state product will be augmented by $20.2 billion.
- Inflation adjusted after tax individual income will rise by $13.2 billion.
- Federal fiscal impacts are expected to total $172 million annually, primarily from personal income tax revenue. This means that the federal government would recover its funding in ten years.
- The state fiscal impact is projected to be $122 million per year, principally from sales tax, gaming tax, and property tax revenues.

It is interesting to note that the large impacts in the state of Nevada are unlikely to happen elsewhere. This is because Nevada's infrastructure and human resources supports an intact tourism economy that may easily accommodate the requirements of 2.3 million additional visitors. Other less tourism-centered economies may certainly see economic benefits from the project, but because riders would not be attracted to sites with a more modest destination focus than Las Vegas, the economic impacts would be far lower.

Introduction

Plans are currently being evaluated for the construction of a magnetic levitation (Maglev) train along the forty-mile stretch between Las Vegas, Nevada and the Nevada-California border at Primm, Nevada. The demonstration project would be part of a larger plan to provide Maglev service to relieve transportation congestion along the heavily traveled I-15 corridor between Las Vegas and Southern California. The train would reach speeds of 310 mph during the 12-minute trip.

The rail system would be constructed over a three-year period beginning in 2003. Of the 1.2 billion in construction costs, an estimated $604 million will be spent in Nevada. The first operations would begin in 2006. Due to the high-tech design of the rail system, the process would be highly automated, requiring few workers for the actual operation of the train.

The train would serve as a commuter service for workers that lived in either Las Vegas or Primm. The project would also provide another mode of transportation for Las Vegas visitors that wished to spend a day shopping or gaming in Primm. The novelty of the train, the first Maglev train in the U.S. and the fastest train in the world, is expected to induce a significant amount of new tourism into Southern Nevada.

Expenditures from the construction and operation of the rail system together with the large number of new visitors expected to be drawn to Las Vegas by the one-of-a-kind experience of the train will have a significant and positive impact on the Southern Nevada economy. It is the purpose of this study to examine what those impacts might be. We provide estimates of the impact the project will have directly and indirectly on the economy of Clark County and the state of Nevada in terms of employment, gross

regional product, and inflation-adjusted disposable income. Also, we estimate the fiscal impact, in terms of additional revenues generated by the project and additional tourism expenditures, to the state and the U.S. government. Special attention is paid to spending and modeling assumptions underlying the results.

Once tallied, the degree of total economic benefit to the state of Nevada and Clark County will depend on several factors, including the estimated amount of the direct expenditures, the percentage of those expenditures that stay within the state or county, and the multiplier effect of re-spending for the different industry categories of expenditures.

The economic impacts of these expenditures are modeled using the REMI model, a state-of-the-art econometric impact model that accounts for dynamic feedbacks between economic and demographic variables. Special features allow the user to update the model to include the most current economic information. The Center for Business and Economic Research calibrates the model using information concerning new infrastructure investment, employment levels, and new investment in commercial enterprises.

The REMI model used divides Nevada into five regions--Clark County, Nye County, Lincoln County, Washoe County and Carson City, and the remaining counties are combined to form a fifth region. These regions are modeled using the US economy as a backdrop. The model contains over 100 economic and demographic relationships that are carefully constructed to parsimoniously represent the state economy. The model includes equations to account for migration and trade between the regions and other counties in the US.

Assumptions Underlying the Economic Impact

To estimate the impact the Maglev will have on the economy of Clark County and the state of Nevada, it is necessary to make certain assumptions about what new expenditures will occur in Nevada as a result of the construction and operation of the train. New expenditures are defined as expenditures that would not have occurred within the state or county if the train were not built. We contrast new expenditures with substitute expenditures, or those monies that would have been spent on currently existing transportation choices. For example, new tourism expenditures are limited to visitors that come primarily to use the Maglev train and who would not have come otherwise.

The new expenditures may be allocated to three categories: 1) expenditures on the construction of the rail system, 2) expenditures on the operation of the rail system, and 3) expenditures made by tourists whose primary purpose of their visit is to ride the Maglev.

Construction Assumptions

The economic impact of the Maglev project will ultimately depend upon the amount and type of expenditures that take place within the state of Nevada. Construction spending is assumed to begin in 2003, with the construction phase of the project lasting three years. During that time, guideways and stations will be built and the power system serving the train will be constructed and installed. Expenditures in Nevada in the construction phase are expected to total $604 million. Detailed engineering cost estimates, reported in Table 1, reflect the best known current information concerning the costs of materials and labor that will be spent in Nevada for constructing the rail system.

The final economic impacts, measured in terms of employment, earnings, and total direct and indirect expenditures, are sensitive to the industry sector in which the expenditures are allocated. This is particularly true for the state of Nevada where the high-tech economic sectors are in their infancy. We allocate the salary expenditures for construction of the rail system to the construction and miscellaneous services sectors. Capital spending is allocated to new local transit services.

Table 1. Labor and Capital Cost Expenditures in Nevada for the Construction of the Maglev Train.

	Capital Costs (thous $)	Labor Costs (thous $)	Total
Category			
SS civil structures	1,600	2,400	4,000
SS propulsion block	11,040	16,560	27,600
Maintenance Equip	48	72	120
Program Manag	184	276	460
motor windings	10,600	15,900	26,500
ES substations	5,760	8,640	14,400
ES operating	816	1,224	2,040
ES passenger station	160	240	400
Program Manage	0	2,250	2,250
Operation controls & safety	0	10,000	10,000
Maintenance Equip	164	245	409
Doc/Train	0	273	273
Spare parts	546	0	546
Comm/control tech	234	352	586
Guideway sub struct	31,800	21,200	53,000
Guideway superstrct	145,130	96,753	241,883
Stator Pack/mach	19,286	12,857	32,143
Special civil struct	450	300	750
Earthworks	561	374	936
Stations	11,316	7,544	18,860
Op & Maint Facilities	18,306	12,204	30,510
ROW & Corridor	5,038	3,359	8,397
Project Dev	0	200	200
Planning Engin	0	46,360	46,360
Project Man	0	46,360	46,360
Train/start/test	0	34,770	34,770
Total	**263,039**	**340,713**	**603,752**

Maintenance and Operations Expenditures

The train is expected to begin operations in 2006. We estimate operation impacts for 41 years through 2046. Because of the highly automated process underlying the operation and maintenance of the Maglev, costs, particularly labor costs, are quite low.

Table 2. Annual Labor Expenditures in Nevada for Operation and Maintenance of the Maglev Train, Thousands of 2006 Dollars.

	Building Trade	Technical	Engin.	Admin.	Manage.	Exec.	Total
Maint of Way							
Inspect & repair	50	0	0	0	0	0	50
major structures	150	100	61	0	0	0	311
Electric power maint	100	100	98	0	0	0	298
Signal Comm & Prop	300	400	201	0	0	0	901
MOW facilities	157	0	0	0	0	0	157
Maint of Equip							
Short turn clean	68	0	0	0	0	0	68
Service & inspect	100	445	100	0	0	0	645
Maint & repair	500	1,967	300	0	0	0	2,767
MOE buildings	125	0	0	0	0	0	125
Transportation							
Super & dispatch	0	495	0	0	150	125	770
Train movement	0	752	75	0	75	0	902
Yard Ops	60	0	0	0	0	0	60
Passenger Traffic & Serv.							
Marketing & pricing	0	0	0	0	111	0	111
Info, res, ticketing	0	0	0	1,574	65	75	1,714
Baggage	21	0	0	0	0	0	21
Station ops	60	0	0	534	65	0	659
Station overhead	0	0	0	99	0	0	99
General & Admin							
General & Admin man	0	0	0	297	100	250	647
Personnel	0	0	0	227	70	0	297
Procurement	0	0	0	286	70	0	356
Finance man	0	0	0	246	75	100	421
Security	434	0	0	100	50	50	634
Insurance	0	0	0	73	100	0	173
Total	**2,125**	**4,260**	**835**	**3,437**	**931**	**600**	**12,188**

The labor budget translates into approximately 300 new jobs annually in Nevada. The new employment is allocated to the local and interurban transportation sector. Capital expenditures are allocated to local transit facilities. Table 2 provides a detailed breakdown of the labor and capital spending for maintenance and operation.

Ridership and New Visitor Expenditures

Special care must be taken when estimating the tourism impacts of the proposed Maglev. An accurate assessment of visitor impacts must adequately account for substitution effects between the different attractions associated with the locale of interest. For instance, if a tourist rides the Maglev train instead of visiting the Hoover Dam, then the impact to the state of Nevada is near zero, since the expenditures would have been captured by the state without the train. However, if a tourist comes to Nevada primarily to ride the train or, alternatively, stays an extra day for that purpose, then the train project may be credited with increased tourism expenditures equal to the amount spent for the entire trip in the first case and for the additional day in the second case.

To assess the visitor days that will be induced the by Maglev train, we use data from a ridership study collected by the URS Corporation. The ridership forecasts arising from the study were based on a stated preference survey performed by Resource Systems Group (RSG). See the Appendix for a complete discussion of the RSG ridership stated preference survey.

The forecasts indicate that 32,350 one-way trips are expected daily in the first year of operation. This translates into 11,808,000 trips in the first year. Ridership is expected to expand to 40,812 one-way trips by 2025, totaling 14,896 trips in that year. In 2005, 86 percent of the trips will be for the purpose of visiting Primm attractions such

as golfing, shopping, and gaming, 4 percent will be for visiting Las Vegas from Primm, and 10 percent will be Primm employee trips.

The responses to the RSG ridership survey indicated that of the visitors who would ride the train, 27 percent would make a special trip to Las Vegas to do so. Thus, we assume that 27 percent of the projected attraction ridership will be repeat visitors returning to ride the Maglev. This means an additional 2,322,240 visitors in 2005, growing to 2,929,546 new visitors in 2025. Although these visitors will come primarily to ride the train, they will require lodging, dining, and other facilities. Therefore, these visitors constitute new tourism expenditures that should be included as economic impacts of the Maglev.

We assume that out-of-area visitors coming to ride the Maglev train will stay in Las Vegas due to its outstanding visitor facilities. Past research has indicated that, on average, a visitor to Nevada spends $140 per day on food, lodging, shopping, and entertainment. According to the Las Vegas Convention and Visitor Authority, the median stay for visitors coming to Las Vegas is 3.7 days. Total tourism expenditures are expected to total $1,203 million per year.

Past research has shown that stated preference surveys may tend to overestimate the willingness to pay for recreation amenities (Freeman 1994). Often, for a variety of reasons, people's stated intentions do not always match their actual behavior. Some studies have shown that when people are faced with actual choices, their willingness to pay for goods or services often drops by 50 percent or more over their stated intentions prior to the purchase. For this reason, many economists prefer revealed preference estimates of choices to stated preference-based estimates. However, when a good or

service does not yet exist, revealed preference modeling is impossible, and we must resort to stated preference techniques. When used cautiously, they are an invaluable source of information concerning intended behavior.

Because of the problems associated with stated preference models, it is insightful to investigate the economic impact of the Maglev train under a scenario with a reduced tourism impact. Thus, in addition to results based on 2.3 million visitors, we present economic-impact estimates based on one-half of that amount, namely 1.15 million visitors with annual spending of $610 million. Although cutting the visitor volume in half is in some sense arbitrary, it provides a useful illustration of how economic impacts may change with changes in the number of new visitors attracted.

Estimated Economic Impacts of the Maglev Train to Nevada

Given the assumptions concerning construction operations and new tourism expenditures, we estimate the economic impact of the Maglev project. The final impact may be broken down into two main components: 1) the impact of the *direct* expenditures from the construction and operation and new tourism induced by the Maglev and 2) indirect impacts, created by the multiplier effect, whereby direct spending re-circulates through the economy creating expenditures over and above those directly attributable to the project. Indirect impacts may be best explained by an example. New visitors to Las Vegas will mean additional hotel rooms must be built. Therefore, one of the indirect impacts of the tourism expenditures will be new jobs in the construction sector as additional rooms are added. More rooms mean more hotel and casino workers, who will demand retail, housing, and other services. Although the wages for hotel workers are considered as direct impacts from the tourism component of the Maglev project,

additional retail spending and spending on housing are indirect impacts. The multiplier describes the proportional increase in indirect economic activity generated by direct expenditures. An economic multiplier of 2 means that for each dollar of expenditure directly attributable to a project, an additional dollar's worth of economic activity is created in the economy.

The economic impact of the Maglev project can be presented using three key economic variables: employment, real gross regional product, and real disposable personal income. Employment impacts are reported in terms of the number of jobs created either directly or indirectly in the economy each year. Real gross regional product is defined as the inflation-adjusted final value of all goods and services produced in the regional economy (either at the county or the state level) over the life of the project. Real disposable personal income impact is the income earned by the region's residents (either at the county or state level) over the life of the program that would not have been earned without the program.

Clark County Impacts

Employment. The employment impact varies over the life of the project. Figure 1 gives the Clark County employment impact from 2003 to 2045. During the construction phase, approximately 5,500 new jobs may be attributed to the project. Once the train is operating, additional tourism creates even larger employment impacts: 12,000 new jobs at the first year of opening, tapering to 9,500 jobs in the latter years of the project if 2.3 million new visitors arrive each year. Employment impacts are lower if 1.15 million new visitors are assumed: about 6,000 new jobs in the first year of operation and falling to 5,000 new jobs later.

Gross County Product. Gross county product (GCP) is defined as the final value of all goods and services produced in the Clark County. When reported on an incremental basis, it reflects the regional economic activity attributable to a particular project or program.

Figure 2 details the sources of the economic activity. Without considering tourism impacts, direct and indirect expenditures from labor and capital for constructing, assembling, and operating the Maglev train account for elevated GCP of $1.44 billion. Adding 2.3 million tourists each year generates an additional $17.6 billion in expenditures in the county over the life of the project. Thus the cumulative economic impact, in terms of real gross county product is $18.6 billion assuming 2.3 million tourists are attracted each year. If tourism is reduced by half, so that 1.15 additional visitors come because of the train, then the real gross county impact falls to $9.89 billion over the life of the program.

After tax personal income. After-tax personal income is defined as all income received by individuals, including wages and salaries, rent, dividends, and other property income net of state, federal, and local taxes. As such, real after-tax income will be less than the gross county product. Figure 3 provides the cumulative impact of the Maglev train on real after-tax income in Clark County. With 2.3 million visitors, the Maglev project is expected to create $12.1 billion of new after-tax income in Clark County.

State Impacts

Because most of the economic activity related to the Maglev project will occur in Clark County, it is the primary beneficiary of the economic impacts. However, additional economic activity in Clark County generates new activity in other counties in the state.

In particular, neighboring counties experience an economic boost. Thus, it is important to discuss the impacts to the state of Nevada as a whole.

Employment Impacts. The pattern of employment impact to the state closely follows that to the county. Figure 4 gives the state employment impacts under the key assumptions of 2.3 million visitors and 1.15 million visitors per year. During the construction phase, approximately 5,700 jobs are created in the State because of the project. During the operations phase, 12,800 new jobs are created during the first year of the project, falling to 9,500 jobs later in the life of the program. If visitor volume is reduced by half, so that 1.15 million new tourists visit Las Vegas each year in response to the Maglev, then employment figures are reduced by about one-half during the operation phase.

Real Gross State Product. As expected, the primary impacts of the Maglev train will occur in Clark County, but some additional economic activity is generated in other parts of the state. Figure 5 gives the real gross state impact over the life of the project. If 2.3 million additional tourists arrive each year to ride the train, then real gross state product will see a boost of $20.2 billion. The impact will be approximately half of that – $10.7 billion- if the tourism response is 1.15 million new tourists per year.

After tax personal income. Real after-tax income in the state is increased by $13.2 billion dollars over the life of the project if the Maglev is responsible for 2.3 million new visitors per year. After-tax income falls to $7.2 billion if 1.15 million new tourists are assumed.

Fiscal Impacts of the Maglev Project

Of primary importance in the evaluation of the economic impact of the Maglev train is the potential for increased state and federal taxes over and above those that would be collected without the project. Therefore, we undertake an assessment, based on the

sum of the direct, indirect, and induced expenditures, of the gains in tax revenue that are expected to result from the project.

Table 3 tallies the annual tax revenues that will be generated by the project if built in Nevada. The federal government gains $173 million per year from tax revenues either directly or indirectly associated with income and expenditures from the Maglev train. The bulk of the federal tax revenue is derived from personal income tax, accounting for $64 million in revenues. Corporate profit tax adds another $22.4 million to federal coffers. If the federal government allocates $950 million over the three-year period beginning in 2003 and ending in 2005, government revenues from the project will be recovered early in 2013, assuming a discount rate of 6 percent.

It is important to note that the magnitude of federal tax monies attributable to the project is far higher if the project is built in Las Vegas than if built at a site less likely to draw the large number of tourists predicted. Las Vegas, at 35 million visitors per year, is one of the two most popular visitor destinations in the country. The other site, Orlando, experiences similar visitor volumes. Because of the large visitor volumes, Las Vegas has an intact hotel and tourism economy that can easily accommodate 2.3 million additional visitors per year. Once attracted to Las Vegas, visitors are likely to stay longer given the wide range of tourism opportunities offered. Thus, the overall economic impact of the Maglev will be larger in Las Vegas, resulting in larger federal tax revenues being generated by the project. The state fiscal impacts are also significant. Assuming 2.3 million tourists per year are brought to Las Vegas principally to ride the Maglev, state and local governments will collect $122 million each year in tax revenues. Of these revenues, $44 million derive from sales tax, $18.7 million from property tax, and $8.9

Table 3. Annual Tax Impact for Maglev Train Assuming 2.3 million Tourists per Year, In Year 2000 Dollars

Tax	**Amount**
Federal Taxes	
Corporate Profits Tax	22,476,520
Indirect Bus Tax: Custom Duty	3,216,805
Indirect Bus Tax: Excise Taxes	9,365,560
Indirect Bus Tax: Fed NonTaxes	3,250,304
Interest (Gross)	2,196,824
Personal Tax: Estate and Gift Tax	1,688,120
Personal Tax: Income Tax	64,331,265
Personal Tax: NonTaxes (Fines Fees	250,789
Soc Sec Tax Employee Contribution	34,180,245
Soc Sec Tax Employer Contribution	31,985,203
Federal Total	**172,941,633**
State and Local Taxes	
Dividends	1,264,077
Indirect Bus Tax: Motor Vehicle Lic	595,417
Indirect Bus Tax: Gaming Tax	9,557,085
Indirect Bus Tax: Property Tax	18,719,746
Indirect Bus Tax: S/L NonTaxes	8,928,667
Indirect Bus Tax: Sales Tax	44,127,363
Indirect Bus Tax: Severance Tax	513,488
Interest (Gross)	0
Personal Tax: Estate and Gift Tax	173,752
Personal Tax: Income Tax	0
Personal Tax: Motor Vehicle License	760,993
Personal Tax: NonTaxes (Fines Fees	1,957,742
Personal Tax: Other Tax (Fish/Hunt)	399,194
Personal Tax: Property Taxes	183,085
Soc Sec Tax Employee Contribution	4,055,192
Soc Sec Tax Employer Contribution	9,886,773
State Total	***101,122,573***
Grand Total	***274,064,206***

million from gaming tax. The remaining revenues are related to social security ($13.9 million) and miscellaneous government collections.

Conclusion

If built, the Maglev train will have a significant economic impact within the state of Nevada. At the peak, nearly 13,000 new jobs would be created in the state. Over the 41-year period studied, gross state product will be augmented by $20.2 billion. Inflation-adjusted after-tax income will rise by $13.2 billion. The Maglev train is expected to draw 2.3 million new visitors to the state each year.

The large impacts expected in the state of Nevada are unlikely to happen elsewhere. This is primarily because Nevada has an intact tourism economy that may easily accommodate the vacation requirements of 2.3 million visitors. Other, less tourism-centered economies would certainly see economic benefits from the project. But, because fewer tourists would be attracted to sites with a more modest entertainment focus than Las Vegas, the economic impacts, thus federal and state tax revenues, would be far lower.

Appendix. Evaluation of the Resource Systems Group Stated Preference Survey

The purpose of the survey was to forecast ridership and revenue for the proposed Maglev train service serving Nevada and Southern California. The survey addressed ridership and revenues for three scenarios: 1) service between Primm and Las Vegas, 2) service between Southern California, and Las Vegas with a Park-and-Ride facility in Barstow California and 3) service between Anaheim, California and Las Vegas. Our comments will focus on survey results with respect to the Las Vegas to Primm segment. However, the comments are general enough to apply to the other segments as well.

The study used a stated preference survey to analyze travel-mode choice for the different trip segments. The survey was designed to collect information regarding ridership intent for the new mode choice, the Maglev train. The stated preference format is used because with a novel travel mode, it is impossible to observe actual ridership choices. Thus, ridership intent and willingness-to-pay estimates must be based on travel choices people state they will make, if given the opportunity.

The survey was designed to be self-administered using a microcomputer. Attendants were present to assist those unfamiliar with the operation of a microcomputer. Questions were presented to adapt to previous responses. Statistical analysis was performed directly from the data input by survey respondents. Questions were also asked of the respondents concerning their revealed trip preference, i.e., how many trips they currently take between Las Vegas and Primm, the travel mode for the trips, and the purpose of the trip. Another series of questions were asked about future intended trips between the two points if the Maglev were available. The survey took place over a four-

week period beginning in January of 2000 and ending in the first week of February. In all, 2,419 surveys were completed.

The Results

In our opinion, the survey was designed in a superior manner. The use of computers enables researchers to offer identical and detailed graphical information to each respondent, allowing for greater reliability. This method also reduces the possibility that "interviewer bias" will distort responses. Computers also offered question sequencing versatility that reduces respondent fatigue, improving the quality of responses. Finally, questions were clear and accurately worded, also helping to ensure reliable interpretation of responses.

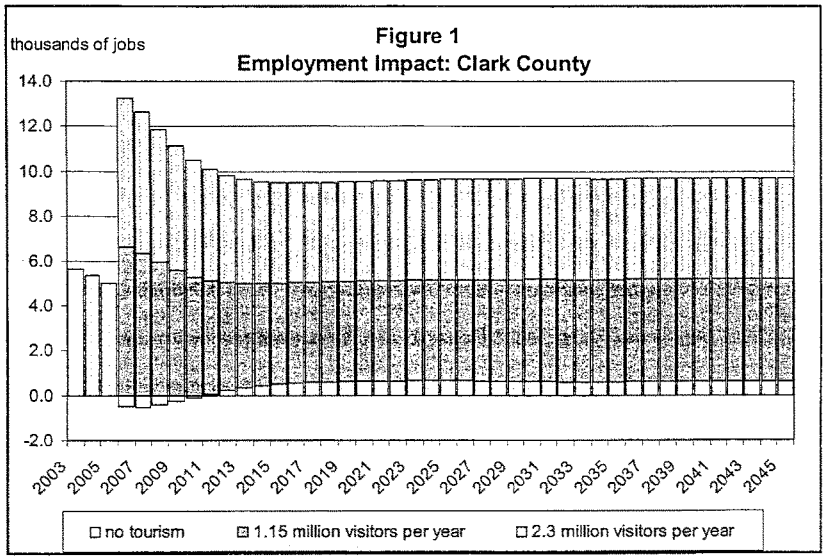
We have only a few criticisms of the survey and design. One concern is that the survey was conducted over one month, possibly excluding some types of visitors. In particular, families with school-age children travel primarily in the summer, and may be under-represented in a winter survey. Because these groups may be somewhat more likely to wish to utilize the Maglev train while in Las Vegas, the final tally could understate demand. Older individuals may also be under-represented because they have less computer facility, on average, than do younger survey participants. However, the presence of trained attendants probably helped to mitigate any bias induced by lack of computer knowledge.

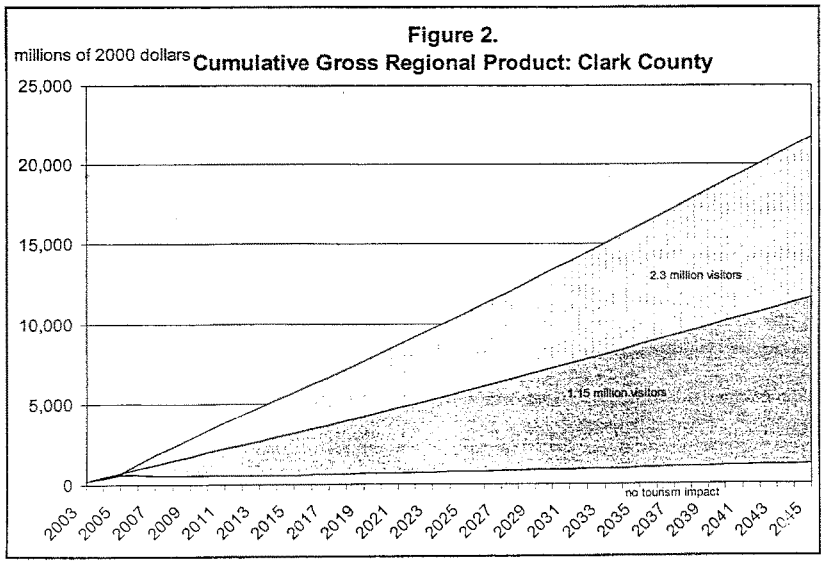
Our other concern surrounds the ridership estimates produced from the survey. In general, estimates based on stated preference studies are less reliable than those based on revealed behavior. This is simply because people's stated intentions do not always match their actual behavior. Some studies have shown that when people are faced with actual

choices, their willingness to pay for a good often drops by 50 percent or more over their stated intentions prior to the purchase (Freeman 1994). For this reason, many economists prefer revealed preference estimates of choices to stated preference-based estimates. However, when a good or service does not yet exist, revealed preference modeling is impossible, and we must resort to stated preference techniques. When used cautiously, they are an invaluable source of information concerning intended behavior.

In the end, the stated-preference model used for the survey appears to be state of the art. Nevertheless, it is subject to the accuracy problems associated with all stated-preference surveys. Thus, the results, though providing a good benchmark for comparison to other projects, should be used with caution.

Another caveat should be considered when interpreting the economic impacts presented here. The stated preference study questioned Las Vegas visitors about their plans to return to Las Vegas if the Maglev is built. However, another potential pool of visitors consists of those individuals that have never visited Las Vegas, but would come for the train. Without additional survey evidence, it is not possible to predict what level of induced visitation could result from those who have never visited Las Vegas in the past. However, we can say that if people who have never visited Las Vegas are more likely to come primarily to ride the train than the current Las Vegas visitor is to return for that purpose, then the estimate of 2.3 million new visitors to Las Vegas may be understated. Nevertheless, without more information about preferences, it is impossible to obtain a precise estimate of how many more visitors may come.


thousands of jobs
Figure 1
Employment Impact: Clark County
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
-2.0
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
2025
2027
2029
2031
2033
2035
2037
2039
2041
2043
2045
no tourism
1.15 million visitors per year
2.3 million visitors per year


millions of 2000 dollars
Figure 2.
Cumulative Gross Regional Product: Clark County
25,000
20,000
15,000
10,000
5,000
0
2.3 million visitors
1.15 million visitors
no tourism impact
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
2025
2027
2029
2031
2033
2035
2037
2039
2041
2043
2045

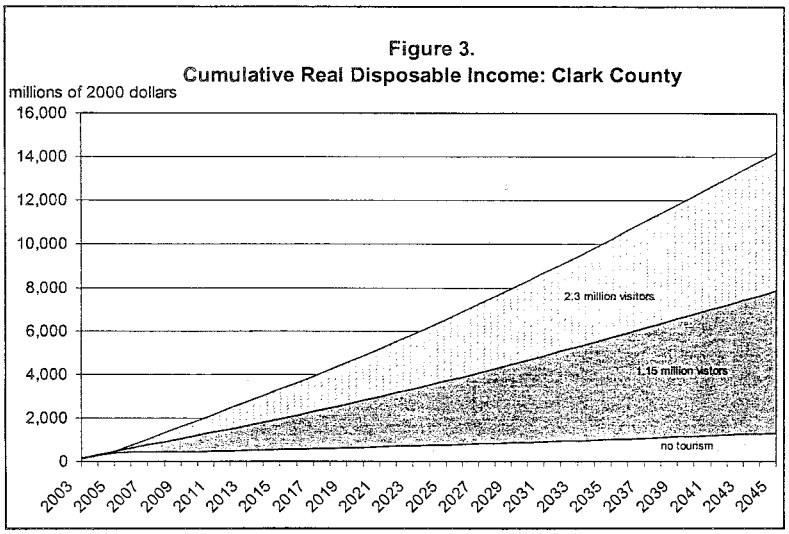


Figure 3.
Cumulative Real Disposable Income: Clark County
millions of 2000 dollars
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
2.3 million visitors
1.15 million visitors
no tourism
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
2025
2027
2029
2031
2033
2035
2037
2039
2041
2043
2045

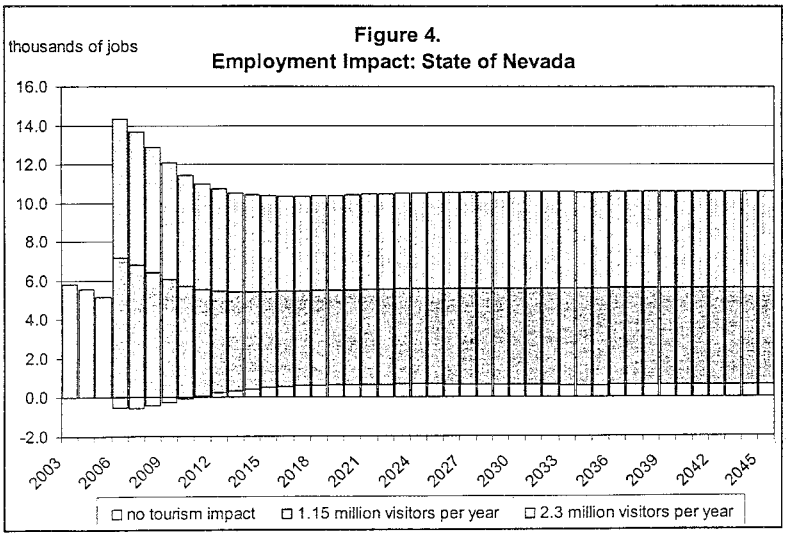


Figure 4.
Employment Impact: State of Nevada
thousands of jobs
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
-2.0
2003
2006
2009
2012
2015
2018
2021
2024
2027
2030
2033
2036
2039
2042
2045
no tourism impact
1.15 million visitors per year
2.3 million visitors per year

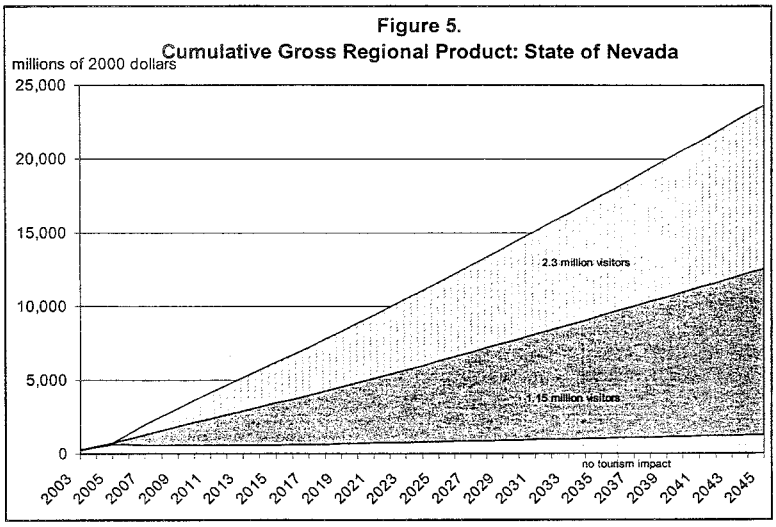


Figure 5.
Cumulative Gross Regional Product: State of Nevada
millions of 2000 dollars
25,000
20,000
15,000
10,000
5,000
0
2.3 million visitors
1.15 million visitors
no tourism impact
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
2025
2027
2029
2031
2033
2035
2037
2039
2041
2043
2045

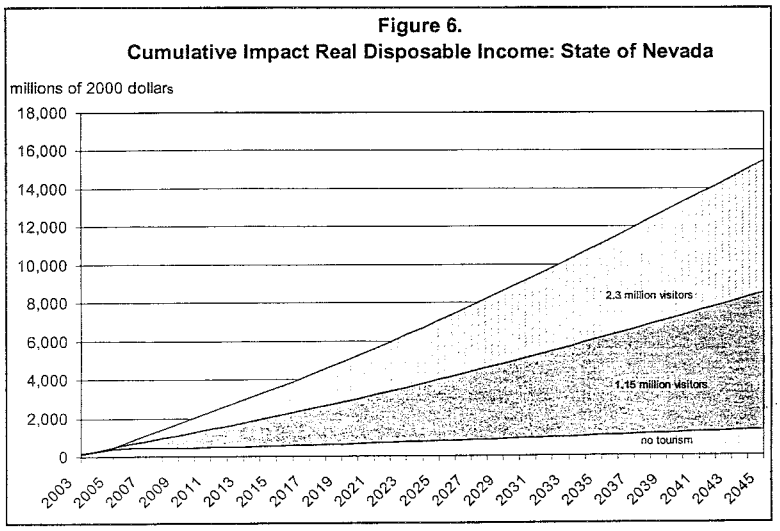


Figure 6.
Cumulative Impact Real Disposable Income: State of Nevada
millions of 2000 dollars
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
2.3 million visitors
1.15 million visitors
no tourism
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
2025
2027
2029
2031
2033
2035
2037
2039
2041
2043
2045

JUL 13 2001

SOUTHERN NEVADA WATER AUTHORITY

CAPITAL IMPROVEMENTS PLAN

December 11, 2000 AMENDMENT

Amended January 20, 2000
Amended August 19, 1999
Amended January 21, 1999
Amended May 21, 1998
Amended January 15, 1998
Amended July 17, 1997
Amended January 16 1997
Amended June 20, 1996
First Issued December 4, 1995

BACKGROUND AND HISTORY

In 1991, the Southern Nevada Water Authority (SNWA) was established in recognition of the importance of addressing water issues on a regional, rather than an individual purveyor basis.

The members of the SNWA are:

City of Henderson
City of North Las Vegas
Las Vegas Valley Water District
Big Bend Water District
City of Boulder City
City of Las Vegas
Clark County Sanitation District

One of SNWA=s primary purposes is to plan and provide for the present and future water needs of all area residents.

SNWA=s existing water system for pumping, treating, and delivering Colorado River water from Lake Mead is known as the Southern Nevada Water System and was first placed into operation in 1971. Since then, Southern Nevada has continually experienced exceptional growth and development. The result has been increasing demand on the water system and the requirement for periodic improvements to meet demands and provide system reliability.

The Southern Nevada Water Authority defined a program of water system improvements based on the following guiding statement:

> *To develop a reliable and demand-responsive regional water system that will supplement the existing Southern Nevada Water System during periods of curtailed production or system failures; and provide the State of Nevada full access to its Colorado River water entitlement.*

Before embarking on a program of water system improvements, the SNWA determined that development of an Integrated Resources Plan would be of benefit in looking critically and imaginatively at ways to achieve identified objectives and making sure that the citizens of Southern Nevada were full partners in the voyage. Thus, in 1994, the SNWA formed an Advisory Committee composed of 24 community representatives to provide feedback in the creation of an Integrated Resources Plan. After months of discussion and consideration, the Advisory Committee issued a set of recommendations upon which the integrated Capital Improvements Plan was established.

A continuing public awareness program which emphasizes the wise use of water and water conservation remains a critical component in resources and facilities planning. A draft Environmental Impact Statement (EIS) which recommended a plan of construction sensitive to

environmental concerns was published for public comment in November 1995. A Record of Decision was issued in November 1996.

SCOPE OF THE SNWA CAPITAL IMPROVEMENTS PLAN

This SNWA Capital Improvements Plan (Plan) grew out of the Advisory Committee recommendations and the EIS. The Plan identifies the specific water system facilities to be constructed. The facilities are separated into four logical groupings:

Intake System Improvements.
Water Treatment Improvements.
Transmission System Improvements.
Other Improvements (mainly power and communication telemetry system.)

The entire Plan covers a 30-year period from 1995 through 2025, and describes an additional planned water delivery capacity of 500 million gallons per day. The initial 3-year period (1995 through 1997) focused on planning the program and designing and constructing improvements to the existing Southern Nevada Water System. Subsequent phases of the Plan provide demand-based capacity when it is needed, operational flexibility, system reliability, and water quality enhancements. This Plan minimizes cost impacts and provides a flexible, yet logical, implementation strategy.

As set forth in the SNWS Facilities and Operations Agreement, the purpose of the Plan is to identify clearly, and in detail, the specific facilities which are proposed to be built, the year in which they are proposed to be completed and an estimate of how much each will cost. The facility improvements described by the Plan are intended to provide a total water delivery (including the currently operating system) of 900 million gallons per day. As projects are completed, the Plan documents actual costs for those facilities. With the April 1998 amendment to the Facilities and Operations Agreement, the Plan now identifies funds for the acquisition of water supplies in addition to the development of new facilities.

The facilities construction program set forth in the Plan demands a logical approach to planning, design, construction and operation. In a program of this magnitude, these four activities overlap to some degree. The following summarizes the current state of the program.

The first new facilities identified in the Plan became operational in May 1997.
The major planning and environmental compliance work for most projects identified in the Plan is complete.
All projects scheduled for completion by 2000 are now operational.
Design work is complete on the facilities scheduled for operation in 2002 and construction is in progress.
Design activities are in progress for 2003 and 2004 phase projects.

ORGANIZATION OF THE PLAN PRESENTATION

The Plan is defined by a series of tables, which describe each project or facility improvement, and provide a comprehensive look at the capital budgets needed for each project and identifies the year the facilities are needed. The order in which facilities are to be constructed is the result of a careful analysis designed to have facilities operational at the time they are needed, in proper sequence, at minimum cost. A map depicting the location of the major facilities is included in the Plan.

In the tables which follow:

Each facilities phase is identified on a separate page by year.
The stated year is the year in which construction or purchase of the facility components is to be complete and operational.
The projects are grouped within each phase, according to:

-Intake System Improvements
-Water Treatment Improvements
-Transmission System Improvements
-Other Improvements

The project numbers are project identifiers used in the administration of project contracts.
The capacity shown in million gallons per day (mgd) or million gallons (MG) indicates the capacity added by that construction phase and the resulting total facility capacity.
The cost is total cost of construction, engineering, and contingency.
Land acquisition capital costs are listed separately. Indirect costs are also listed separately and include program design and construction management services, lead design engineer services, legal and financial services, land acquisition services, environmental mitigation and start-up services.
Costs are in dollars escalated to the midpoint of construction.
At the bottom of each page is the total cost of facilities scheduled to be completed in that phase.

The appendices to these tables provide additional information. Appendix A lists Candidate Projects which are part of the Plan, but not yet approved for funding. Appendix B provides a Summary Cash Flow Table. A historical summary of total funding and costs for all Plan amendments-to-date is given in Appendix C, a System Capacity/Demand/Cashflow Chart is shown in Appendix D, and Appendix E includes a detailed list of all cost changes between this amendment and the last approved amendment.

This Capital Improvements Plan is a dynamic planning document that will be periodically revised in response to future reliability, water quality, water capacity and water resource needs. The Southern Nevada Water System Facilities and Operations Agreement defines the requirements for revisions to the Plan. The Plan will be reviewed on a regular basis and adjusted, as necessary, based

on updated projections of future needs. Updates to the Plan will summarize the current state of the Plan, highlight changes from the previous published Plan, and contain revised tables which illustrate the current costs and direction of the Plan. The change in total costs will be explained.

December 2000 Amendment

This December 2000 amendment reflects an overall increase in the Plan of $53.7 million relative to the previous amendment of January 2000. The total value of this Plan is $2,061.6 million, which is $80.8 million less than the approved Plan funding amount of $2,142.4 million.

A change in accounting methods is the major reason for the $53.7 million increase. This Plan amendment incorporates the Colorado River Commission (CRC) Power Development (Phase I) project valued at $44.3 million, which was funded by CRC and completed in 1999. Since the SNWA must repay these CRC costs from the Plan budget funds, the costs have been added to the Plan in this amendment. The Plan now represents all CRC projects supporting Plan facilities in the same way.

The remainder of the Plan increases are the result of new projects and better definition of future projects. A new project called AMSWTF Process Improvements has been added to Year 2002 to provide additional chemical feed systems. New projects were added in Year 2002 for communications and controls improvements. The 2002 Power Supply Reliability Retrofit Project (Phase IV) has been redefined as three separate projects to better fit actual implementation strategies. A 2003 project called EVL/LVVWD Interconnections was added to improve water deliveries to the Las Vegas Valley Water District.

Partially off setting the increases are decreases resulting from completing Year 1999 and Year 2000 projects under budget, and a reduction in indirect costs. Indirect costs include program management, construction management, and other management support activities. Actual costs have been consistently under budgeted costs. Therefore, the percentage used to forecast indirect costs has been reduced from 16.3% to 12.75%, reflecting program savings of about $47 million.

This amendment also incorporates significant acceleration of most future projects as a result of recent reassessment of projected purveyor water demands and operational needs. Several projects have been moved from Year 2006, 2008, 2011 and 2017 to Year 2004. This has the result of reducing costs by changing the effect of inflation on the construction estimates, even though better definition of those accelerated projects, in some cases, has expanded their project scope. For example: additional pumps and ancillary facilities will be installed at the IPS-2 pumping station to provide better reliability of supply to the AMSWTF; expanding the chemical feed system, the O&M building, and the bulk chemical building at RMWTF; and adding water treatment applied research facilities.

Refer to Appendix E for a detailed list of all cost changes.

The list of candidate projects (Appendix A) has changed. Replace I/O for existing RTU's has been renamed to RTU Upgrades at existing facilities and moved out to 2002. Upgrade I&C of Existing

Facilities is now a 2002 project (10510C Control System Improvements). The three ODSS candidate projects in 2002 have been deleted. Last, a new project (Energy Management System) has been added to 2004.

With the change in total cost of the Plan reflected in this amendment, the cumulative savings-to-date are estimated to be $80.8 million. These savings are available within the Plan for additional or redefined projects and water supply acquisitions.

CAPITAL IMPROVEMENTS PLAN
TABLE OF PROJECTS AND COST ESTIMATES

Abbreviations

AMS - Alfred Merrit Smith
BPS - Booster Pumping Station
CRC - Colorado River Commission
EVL - East Valley Lateral
GAC - Granular Activated Carbon
HWL - High Water Level
IPS - Intake Pumping Station
MG - Million Gallons
mgd - Million Gallons per Day
NPC - Nevada Power Company
NVL - North Valley Lateral
PS - Pumping Station
RM - River Mountains
ROFC - Rate of Flow Control Station
SNWS - Southern Nevada Water System
SVL - South Valley Lateral
WTF - Water Treatment Facility

Project Status Legend

F - Future Project
P - Planning
D - Design
C - Construction
O - Complete and Operational

Notes

Costs are rounded to nearest $100,000. Detailed costs available from SNWA Engineering Program Administration Manager at 862-3400

Subtotals shown are summation of detailed project costs and may vary slightly from total of project costs shown due to rounding.

Final costs for projects with status "O" (complete and operational) are shown in bold.

Projects as listed may be subdivided into one or more contracts, or alternately, individual projects may be combined for design and construction where warranted by schedule or constructability issues.

General
(Non-Project Specific)

	TOTAL COST
Planning/EIS	$35.7
SNWA Administration *(through June, 2008)*	$49.6
Water Resources (Coyote Springs Valley)	$31.2
Water Resources (Muddy River)	$11.0
Subtotal	$127.5

Total Number of Components = 4 ***TOTAL*** **$127.5**

Facility Type Project No. and Description	Status	TOTAL COST (Millions) (Escalated to Midpoint)	
Intake System Improvements			
L11 Low Lift Pumping Station	O	$1.6	
Indirect Costs		$0.3	
Subtotal			$1.9
Water Treatment Improvements			
B01 Batch Plant at AMSWTF	O	$1.7	
D01 Scrubber Prepurchase at AMSWTF	O	$0.0 *	
D11 Disinfection Facilities Upgrades at AMSWTF	O	$3.9	
F11 Filter Additions at AMSWTF	O	$10.6	
P11 Plant Improvements at AMSWTF	O	$8.8	
P12 Plant Mass Excavation at AMSWTF	O	$0.6	
Indirect Costs		$6.6	
Subtotal			$32.3
Transmission System Improvements			
H01 Hacienda Pumps Prepurchase	O	$0.0 **	
M11 Gibson Lateral (48" - 2.0 miles)	O	$5.2	
R11 RM Tank (46 MG)	O	$15.2	
R12 RM Tank Mass Excavation	O	$1.8	
S11 Simmons Pumping Station (71 mgd)	O	$8.7	
T01 Valve Prepurchase	O	$1.0	
T11 RM Tunnel (144" - 4.0 miles)	O	$19.6	
T12 RM Tunnel Portal Connection	O	$13.0	
T13 RM Regulating Tank Mass Excavation	O	$1.3	
W11A West Valley Lateral (60" - 3.3 miles) - Section A	O	$16.7	
W11B West Valley Lateral (60" - 2.9 miles) - Section B	O	$14.8	
Indirect Costs		$25.2	
Subtotal			$122.4
Other Improvements			
10010C Substation Mass Excavation	O	$6.6	
C11 Communications	O	$1.2	
Operational Decision Support System	O	$1.2	
Indirect Costs		$2.0	
Subtotal			$11.0
Total Number of Components = 21	*TOTAL*		**$167.5**

* *Equipment costs were paid as part of D11*

** *Equipment costs were paid as part of S11*

Facility Type Project No. and Description		Status	TOTAL COST (Millions) (Escalated to Midpoint)	
Intake System Improvements				
07010D Low Lift PS Improvements		C	$2.7	
Indirect Costs			$0.3	
	Subtotal			$3.0
Water Treatment Improvements				
08010K East C-1 Detention Basin		O	**$6.8**	
08010L Chemical Containment System at AMSWTF		O	**$1.6**	
Indirect Costs			**$0.9**	
	Subtotal			$9.3
Transmission System Improvements				
11010A RM Lateral (72" - 3.8 miles)		O	**$8.4**	
11010B SVL - Major Crossings		O	**$4.5**	
11010C SVL (108" - 9.8 miles)		O	**$20.8**	
11010D Foothills 2210 PS (140 mgd)		O	**$17.7**	
11010E River Mountains 2530 PS (140 mgd)		O	**$22.4**	
11010G Horizon Ridge 2375 Resv (10 MG), SV Regul Resv (4 MG)		O	**$9.8**	
11010H SVL (90" - 5.0 miles, 54" - 0.2 miles)		O	**$12.1**	
11010I SVL - MacDonald Ranch (108"- 1.1 miles)		O	**$5.1**	
11010K SVL (84" - 6.8 miles)		O	**$17.6**	
11010L Burkholder 2210 Regulating Reservoir (25 MG)		O	**$13.0**	
11010M ROFCs		O	**$6.9**	
11010P Pipe Prepurchase - (108")		O	**$23.5**	
11010Q Pipe Prepurchase - 11010H Phase I (90")		O	**$1.5**	
11010R SV Regul Resv Inlet/Outlet Pipeline (90"- 0.6 miles, 54"- 0.2 miles)		O	**$2.2**	
11010S SVL - MacDonald Ranch Extension (108" - 0.4 miles)		O	**$1.7**	
11010W SVL - Disinfection		O	**$0.5**	
11010X Black Mountain ROFC (25 MG)		C	$2.5	
11010Z R-8 Lateral (24" - 0.8 miles)		O	**$1.1**	
12010A SNWS Phase II Mass Excavation		O	**$2.1**	
12010B SNWS Phase II System "C"		C	$66.5	
Land Acquisition (Capital Costs)			**$5.8**	
Indirect Costs			$28.4	
	Subtotal			$274.1
Other Improvements				
10010Z CRC Power Development (Phase I)		O	**$44.3**	
11010J SVL Communications		O	**$2.6**	
11010T SVL Controls		O	**$1.0**	
Indirect Costs			**$0.3**	
	Subtotal			$48.2

Total Number of Components = 26 ***TOTAL*** **$334.6**

Facility Type Project No. and Description		Status	TOTAL COST (Millions) (Escalated to Midpoint)	
Intake System Improvements			$0.0	
	Subtotal			$0.0
Water Treatment Improvements				
08010C Ozone Addition to AMSWTF (Pre-Design)		O	**$0.6**	
08010D Site Preparation for Ozone Addition to AMSWTF		O	**$3.6**	
Indirect Costs			**$0.4**	
	Subtotal			$4.6
Transmission System Improvements				
13010A EVL - Hollywood/DI to Sloan PS (78" - 2.7 miles)		O	**$18.5**	
13010B EVL - Sloan PS to Las Vegas Blvd. (78" - 5.7 miles)		O	**$18.3**	
13010C EVL - Las Vegas Blvd. to Lamb PS (78" - 4.5 miles)		O	**$15.3**	
13010D Sloan 2160 PS (20 mgd)/Structure (175 mgd)		C	$27.6	
13010E Lamb 2350 PS (20 mgd)/Structure (175 mgd)		O	**$22.8**	
13010F Grand Teton 2330 Reservoir (10 MG)		O	**$10.6**	
13010I Disinfection Facilities: Carlton Square/Twin Lakes		C	$2.8	
13010W EVL Disinfection		O	**$0.3**	
Land Acquisition (Capital Costs)			$5.6	
Indirect Costs			$14.3	
	Subtotal			$136.1
Other Improvements				
10010M NPC Connections to Sloan PS and Lamb PS		O	**$2.5**	
13010J EVL Communications		O	**$2.1**	
13010T EVL Controls		O	**$0.5**	
Indirect Costs			$0.2	
	Subtotal			$5.3

Total Number of Components = 13 ***TOTAL*** **$146.0**

Facility Type Project No. and Description		Status	TOTAL COST (Millions) (Escalated to Midpoint)	
Intake System Improvements			$0.0	
	Subtotal			$0.0
Water Treatment Improvements				
08010ER Ozone Addition to AMSWTF (600 mgd)		C	$72.1	
Indirect Costs			$8.0	
	Subtotal			$80.1
Transmission System Improvements			$0.0	
	Subtotal			$0.0
Other Improvements				
08010W AMSWTF Ozone Communications and Controls		C	$0.4	
10020A CRC Power Deve.opment Project (Phase II)		C	$12.5	
10020B CRC Power Deve.opment Project (Phase III)		C	$14.3	
Indirect Costs			$0.0	
	Subtotal			$27.2

Total Number of Components = 3 ***TOTAL*** **$107.3**

Facility Type Project No. and Description	Status	TOTAL COST (Millions) (Escalated to Midpoint)	
Intake System Improvements			
07010A Lake Mead Intake No. 2 (100 mgd)	O	**$90.3**	
07010B Raw Water Pumping System (108" - 2.0 miles 100 mgd)	C	$134.9	
07010C RM Aqueduct (108" - 3.2 miles)	O	**$15.6**	
07010E BWC Pipeline Relocation	O	**$0.5**	
Indirect Costs		$27.8	
Subtotal			$269.1
Water Treatment Improvements			
08010A RMWTF Direct Filtration (150 mgd); Ozone at RMWTF (150 mgd); Clearwell Exp. (25 MG/50 MG total)	C	$210.9	
08010B Prepurchase Oxygen/Ozone Equipment (AMSWTF & RMWTF)	C	$14.1	
08010F AMSWTF Process Improvements	D	$16.3	
08010V Ozone Training and Start-up Services	C	$0.6	
Indirect Costs		$26.8	
Subtotal			$268.7
Transmission System Improvements			
13510A Boulder City Water Delivery Improvements (30" - 7.0 miles, 10 mgd)	D	$21.4	
14010A NVL, Washburn Rd to Decatur 2350 Res. (24" to 72" - 6.0 miles)	C	$10.3	
14010B Carlton Sq. Lateral Cole Ave to Washburn Rd (42" - 3.9 miles)	C	$8.7	
14010C Gowan 2350 PS (24 mgd)	C	$7.4	
14010D Decatur 2350 Reservoir (20 MG)	C	$10.4	
14010E Deer Springs ROFC (80 mgd)	C	$3.7	
14010G Greenway ROFC (25 mgd)	D	$3.7	
Land Acquisition (Capital Costs)		$3.2	
Indirect Costs		$7.7	
Subtotal			$76.5
Other Improvements			
08010J Intake System and RMWTF Communications	C	$2.9	
08010T Intake System and RMWTF Controls	D	$2.7	
10020D SNWS Power System Upgrades: Equipment Prepurchase	D	$6.5	
10020E SNWS Power System Upgrades: Equipment Installation	D	$2.5	
10020F CRC Power System Upgrades	D	$3.0	
10510A NPC - Leased Fiber Optic Systems	D	$1.0	
10510B Communication Improvements	D	$3.0	
10510C Control Systems Improvements	D	$3.7	
14010J NVL Communications	D	$3.9	
14010T NVL Controls	D	$1.1	
Indirect Costs		$0.6	
Subtotal			$30.9
Total Number of Components = 25	***TOTAL***		**$645.2**

Facility Type Project No. and Description		Status	TOTAL COST (Millions) (Escalated to Midpoint)	
Intake System Improvements			$0.0	
	Subtotal			$0.0
Water Treatment Improvements			$0.0	
	Subtotal			$0.0
Transmission System Improvements				
13010K	EVL/LVVWD Interconnections	D	$3.1	
17010C	NVL, Decatur 2538 PS to Beltway (60" - 4.9 miles)	D	$18.1	
17010G	NVL, Beltway Crossing (60" - 0.4 miles)	C	$2.7	
	Land Acquisition (Capital Costs)		$5.3	
	Indirect Costs		$2.9	
	Subtotal			$32.1
Other Improvements				
			$0.0	
	Subtotal			$0.0

Total Number of Components = 3 ***TOTAL*** **$32.1**

Facility Type Project No. and Description	Status	TOTAL COST (Millions) (Escalated to Midpoint)	
Intake System Improvements			
07210A Raw Water Pumping System Expansion (200 mgd RMWTF + 160 mgd AMSWTF/460 mgd total)	P	$55.1	
Indirect Costs		$6.5	
Subtotal			$61.6
Water Treatment Improvements			
08210A RMWTF Expansion (150 mgd/300 mgd total)	P	$130.3	
08210B RMWTF Prepurchase Ozone Equipment (150 mgd/300 mgd total)	P	$5.5	
Indirect Costs		$13.6	
Subtotal			$149.4
Transmission System Improvements			
13010H Disinfection Facilities: Horizon/Parkway/Bermuda	D	$3.2	
14010F Foothills PS Turbine Project	D	$2.5	
16010A RM 2530 PS No. 2 (175 mgd/315 mgd total) and Clearwell Expansion (25 MG/75 MG total)	P	$67.0	
17010A EVL, River Mtns. Res. to Desert Inn Rd. (78" - 8.0 miles)	D	$48.2	
17010B NVL, Grand Teton 2330 Res. to Valley Drive (72" - 7.0 miles)	D	$39.8	
17010D Sloan 2160 (91 mgd/111 mgd total) and Lamb 2345 (91 mgd/111 mgd total) PS Expansion	P	$19.7	
17010F Decatur 2538 PS (53 mgd)/Structure (78 mgd)	D	$18.3	
Land Acquisition (Capital Costs)		$1.0	
Indirect Costs		$22.8	
Subtotal			$222.5
Other Improvements			
10010P NPC Connection to Decatur 2538 PS	P	$0.6	
10010Q RM PS Expansion Power Supply	P	$3.0	
16010J RM 2530 PS No. 2 Communications	P	$0.9	
16010T RM 2530 PS No. 2 Controls	P	$0.6	
17010J EVL and NVL Communications Improvements	P	$4.4	
17010T EVL and NVL Controls Improvements	P	$3.5	
Indirect Costs		$0.8	
Subtotal			$13.8
Total Number of Components = 16	***TOTAL***		**$447.3**

Facility Type Project No. and Description	Status	TOTAL COST (Millions) (Escalated to Midpoint)	
Intake System Improvements		$0.0	
	Subtotal		$0.0
Water Treatment Improvements			
	Subtotal		
Transmission System Improvements			
15010A RM 2530 PS Expansion - Equestrian Pumps	F	$0.6	
(7 mgd/14 mgd total)			
Indirect Costs		$0.1	
	Subtotal		$0.7
Other Improvements		$0.0	
	Subtotal		$0.0

Total Number of Components = 1 ***TOTAL*** **$0.7**

Facility Type Project No. and Description	Status	TOTAL COST (Millions) (Escalated to Midpoint)	
Intake System Improvements		$0.0	
Subtotal			$0.0
Water Treatment Improvements		$0.0	
Subtotal			$0.0
Transmission System Improvements			
19010A Horizon Ridge 2375 Reservoir Expansion (10 MG/20 MG total)	F	$9.6	
Indirect Costs		$1.2	
Subtotal			$10.8
Other Improvements		$0.0	
Subtotal			$0.0

Total Number of Components = 1 ***TOTAL*** **$10.8**

Facility Type Project No. and Description	Status	TOTAL COST (Millions) (Escalated to Midpoint)	
Intake System Improvements		$0.0	
	Subtotal		$0.0
Water Treatment Improvements		$0.0	
	Subtotal		$0.0
Transmission System Improvements			
20010A Sloan 2160 PS Expansion (64 mgd/175 mgd total)	F	$12.6	
20010B Lamb 2350 PS Expansion (64 mgd/175 mgd total)	F	$7.9	
20010C Decatur 2538 PS Expansion (25 mgd/78 mgd total)	F	$7.9	
20010D Decatur 2350 Reservoir Expansion (10 MG/30 MG total)	F	$9.8	
Indirect Costs		$4.6	
	Subtotal		$42.6
Other Improvements		$0.0	
	Subtotal		$0.0

Total Number of Components = 4	***TOTAL***	**$42.6**
	GRAND TOTAL	**$2,061.6**

APPENDIX A
CANDIDATE PROJECTS

Project	Year	Status	TOTAL COST (Millions) (Escalated to Midpoint)	
	2002			
RTU Upgrades at Existing Facilities		F	$3.1	
		Subtotal		$3.1
	2004			
Decatur Reservoir Outlet Pipeline		F	$1.9	
Energy Management System		F	$2.0	
		Subtotal		$3.9
	2006			
GAC Addition to AMS WTF (600 mgd)		F	$297.2	
GAC Addition to River Mountains WTF (150 mgd)		F	$126.0	
AMSWTF GAC Communications and Controls		F	$0.8	
RMWTF GAC Communications and Controls		F	$0.8	
		Subtotal		$424.8
	2008			
GAC Expansion at River Mountains WTF (150 mgd)		F	$118.5	
RMWTF GAC Communications and Controls		F	$0.9	
		Subtotal		$119.4

Total Number of Components = 9 ***TOTAL*** **$551.2**

APPENDIX B
SUMMARY CASH FLOW TABLE
SOUTHERN NEVADA WATER AUTHORITY
CAPITAL IMPROVEMENTS PROGRAM
(Thousands of Dollars)

	CIP PHASE														Dollars ($)		Percent (%)	
	GEN	1997	1999	2000	2001	2002	2003	2004	2005	2006	2008	2011	2012	2014	2017	Annual	Cumul.	Annual
Period																		
11/93-12/93	299															299	299	0.0%
01/94-12/94	7,774	3,038														10,812	11,111	0.5%
01/95 - 12/95	9,811	25,695	6,611													42,117	53,228	2.0%
01/96 - 12/96	7,674	103,701	36,503	96												147,974	201,202	7.2%
01/97 - 12/97	15,145	26,332	116,089	8,419	857	5,758										172,600	373,802	8.4%
01/98 - 12/98	8,245	7,219	135,009	49,402	5,676	62,241										267,792	641,594	13.0%
01/99 - 12/99	7,043	1,457	35,427	73,175	23,006	164,464		629								305,201	946,795	14.8%
01/00 - 12/00	8,021	17	4,999	14,945	48,097	213,785	8,435	5,907								304,206	1,251,001	14.8%
01/01 - 12/01	8,152				29,680	160,213	1,445	20,351								219,841	1,470,842	10.7%
01/02 - 12/02	7,625					38,755	17,105	153,040								216,525	1,687,367	10.5%
01/03 - 12/03	6,925						5,086	208,313								220,304	1,907,671	10.7%
01/04 - 12/04	5,492							59,067								64,559	1,972,230	3.1%
01/05 - 12/05	5,417															5,417	1,977,647	0.3%
01/06 - 12/06	5,587															5,587	1,983,234	0.3%
01/07 - 12/07	5,328															5,328	1,988,562	0.3%
01/08 - 12/08	3,505											21				3,526	1,992,088	0.2%
01/09 - 12/09	3,637											312	161			4,110	1,996,198	0.2%
01/10 - 12/10	3,562											389	3,123			7,074	2,003,272	0.3%
01/11 - 12/11	3,481												5,868	1,302		10,651	2,013,923	0.5%
01/12 - 12/12	3,612												1,625	8,338		13,575	2,027,498	0.7%
01/13 - 12/13	1,131													26,628		27,759	2,055,257	1.3%
01/14 - 12/14														6,333		6,333	2,061,590	0.3%
01/15 - 12/15																	2,061,590	
01/16 - 12/16																	2,061,590	
01/17 - 5/17																	2,061,590	
Annual ($)	127,466	167,459	334,638	146,037	107,316	645,216	32,051	447,307				722	10,777	42,601		2,061,590		
Cumul. ($)	127,466	294,925	629,563	775,600	882,916	1,528,132	1,560,183	2,007,490	2,007,490	2,007,490	2,007,490	2,008,212	2,018,989	2,061,590	2,061,590			
Annual (%)	6.2%	8.1%	16.2%	7.1%	5.2%	31.3%	1.6%	21.7%				0.0%	0.5%	2.1%				
Cumul. (%)	6.2%	14.3%	30.5%	37.6%	42.8%	74.1%	75.7%	97.4%	97.4%	97.4%	97.4%	97.4%	97.9%	100.0%	100.0%			

Note: - This is a dynamic document in which cashflow forecasts are subject to change with changes in scope, actual contract awards, and revised project estimates and contingencies.
- Cashflow forecasts will be updated on a regular basis and will be available from the SNWA Finance Department.

APPENDIX C
HISTORICAL TOTAL CIP COSTS

(Does not include costs for candidate projects listed in Appendix A)

(Dollars in Millions)

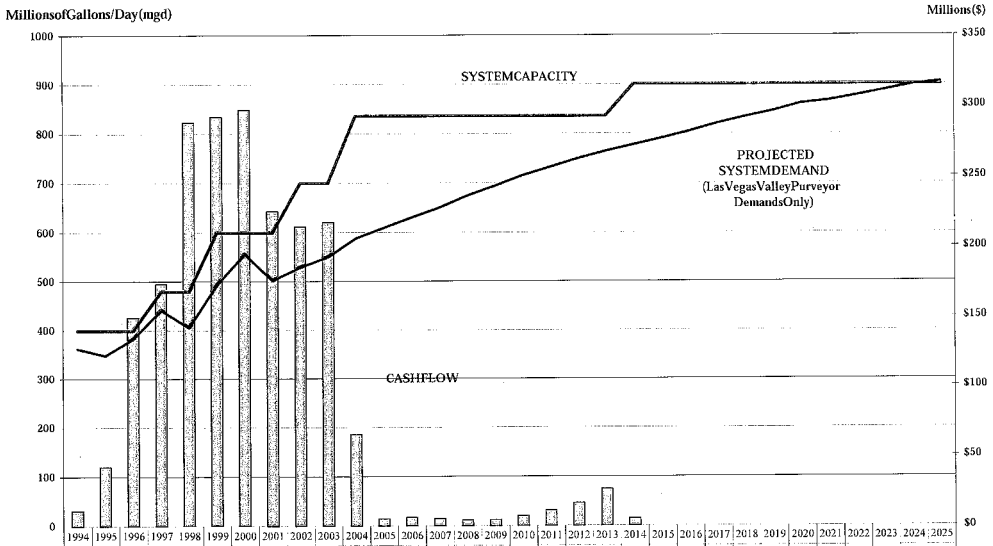
	Authorized Funding Amt. (1999 Dollars)	Authorized Funding Amt. (Midpoint of Construction)	Current Cost Forecast (Midpoint of Construction)	Variance From Previous Forecast
CIP December 4, 1995	$1,991.7	$2,115.7	$2,115.7	n/a
CIP Amended June 20, 1996	$1,991.7	$2,115.7	$2,115.7	$0.0
CIP Amended January 16, 1997	$1,991.7	$2,115.7	$2,115.7	$0.0
CIP Amended July 17, 1997	$1,912.9	$2,115.7	$2,036.7	($79.0)
CIP Amended January 15, 1998	*n/a*	$2,115.7	$2,009.4	($27.3)
CIP Amended May 21, 1998	*n/a*	$2,115.7	$2,004.6	($4.8)
CIP Amended January 21, 1999	*n/a*	$2142.4 *	$2,019.6	$15.0
CIP Amended August 19, 1999	*n/a*	$2,142.4	$2,001.5	($18.1)
CIP Amended January 20, 2000	*n/a*	$2,142.4	$2,007.9	$6.4
CIP Amended December 11, 2000	*n/a*	$2,142.4	$2,061.6	$53.7

Cumulative savings-to-date are estimated to be $80.8 million. These savings remain available within the capital plan for additional projects.
**** Authorized Funding Amount increased by $26.7 million by SNWA and Purveyor Boards for Boulder City Water Delivery Improvements (January 1999)***

APPENDIX D

CAPACITY/DEMAND/CASHFLOW

SOUTHERN NEVADA WATER AUTHORITY
CAPITAL IMPROVEMENTS PROGRAM



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Cashflow ($M)	$11	$42	$149	$173	$288	$292	$297	$225	$214	$217	$65	$5	$6	$5	$4	$4	$7	$11	$16	$26	$5	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
System Capacity (mgd)	400	400	400	480	480	600	600	600	700	700	836	836	836	836	836	836	836	836	836	836	900	900	900	900	900	900	900	900	900	900	900	900
Projected System Demand (mgd)	363	349	383	442	406	493	556	502	529	550	588	609	630	650	674	694	715	732	749	764	777	790	804	820	833	845	860	866	876	887	898	904

Notes: 1) This is a dynamic document in which cashflow forecasts are subject to change with changes in scope, actual contract awards, and revised project estimates and contingencies. Cashflow forecast will be updated on a regular basis and available from the SNWA Finance Department. 2) System Demand curve does not include Boulder City raw or treated water demands, but cashflow does include cost of Boulder City Water Delivery Improvements project. System Demand curve uses actual data through year 2000.

December 11, 2000 CIP Admendment

APPENDIX E
VARIANCE REPORT (CHANGES SINCE LAST CIP AMENDMENT)

	Aug 1999 CIP	Jan 2000 CIP	Variance	Aug 1999 CIP	Jan 2000 CIP
General					
Planning/EIS	$31.7	$34.6	$2.9		
SNWA Administration	$49.6	$49.6	$0.0		
Acquisition of Water Supplies	$42.4	$42.4	$0.0	$123.7	$126.6
1997 Facilities					
L11 Low Lift Pumping Station	$1.6	$1.6	$0.0		
Indirect Costs	$0.3	$0.3	$0.0		
B01 Batch Plant at AMSWTF	$1.7	$1.7	$0.0		
D01 Scrubber Prepurchase at AMS WTF	$0.0	$0.0	$0.0		
D11 Disinfection Facilities Upgrades at AMS WTF	$3.9	$3.9	$0.0		
F11 Filter Additions at AMS WTF	$10.6	$10.6	$0.0		
P11 Plant Improvements at AMS WTF	$8.8	$8.8	$0.0		
P12 Plant Mass Excavation at AMS WTF	$0.6	$0.6	$0.0		
Indirect Costs	$6.6	$6.6	$0.0		
H01 Hacienda Pumps Prepurchase	$0.0	$0.0	$0.0		
M11 Gibson Lateral (48" - 2 miles)	$5.2	$5.2	$0.0		
R11 River Mountains Tank	$15.2	$15.2	$0.0		
R12 River Mountains Tank Mass Excavation	$1.8	$1.8	$0.0		
S11 Simmons Pumping Station (71 mgd)	$8.7	$8.7	$0.0		
T01 Valves Prepurchase	$1.0	$1.0	$0.0		
T11 River Mountains Tunnel (144" - 4 miles)	$19.6	$19.6	$0.0		
T12 River Mountains Tunnel Portal Connection	$13.0	$13.0	$0.0		
T13 River Mountains Regulating Tank Mass Excavation	$1.3	$1.3	$0.0		
W11A West Valley Lateral (60" - 3.3 miles) - Section A	$16.7	$16.7	$0.0		
W11B West Valley Lateral (60" - 2.9 miles) - Section B	$14.8	$14.8	$0.0		
Indirect Costs	$25.2	$25.2	$0.0		
10010C Substation Mass Excavation	$6.6	$6.6	$0.0		
C11 Communications	$1.2	$1.2	$0.0		
ODSS	$1.2	$1.2	$0.0		
Indirect Costs	$2.0	$2.0	$0.0	$167.6	$167.6
1999 Facilities					
07010D Low Lift Pumping Station Improvements	$2.8	$2.8	$0.0		
Indirect Costs	$0.4	$0.4	$0.0		
08010K East C-1 Detention Basin	$6.5	$7.4	$0.9		
08010L Chemical Containment System at AMSWTF	$1.6	$1.6	$0.0		
Indirect Costs	$1.1	$1.2	$0.1		
11010A River Mountains Lateral (72" - 3.8 miles)	$8.4	$8.4	$0.0		
11010B South Valley Lateral - Major Crossings	$4.5	$4.5	$0.0		
11010C South Valley Lateral (108" - 9.8 miles)	$20.8	$20.8	$0.0		
11010D Foothills 2210 Pumping Station (140 mgd)	$17.7	$17.7	$0.0		
11010E River Mountains 2530 Pumping Station (140 mgd)	$21.6	$21.7	$0.1		
11010G Horizon Ridge 2375 Resv (10 MG), South Valley Regul Resv	$9.8	$9.8	$0.0		
11010H South Valley Lateral (90" - 5 miles, 54" - 0.2 miles)	$12.1	$12.1	$0.0		
11010I South Valley Lateral - MacDonald Ranch Pipeline	$5.1	$5.1	$0.0		
11010K South Valley Lateral (84" - 6.8 miles)	$17.8	$17.8	$0.0		
11010L Burkholder 2210 Regulating Reservoir (25 MG)	$13.1	$13.1	$0.0		
11010M Rate of Flow Control Stations	$6.9	$6.9	$0.0		
11010P Pipe Prepurchase	$23.8	$23.0	($0.8)		
11010Q Pipe Prepurchase	$1.5	$1.5	$0.0		
11010R Sunridge Development Lateral	$2.2	$2.2	$0.0		

APPENDIX E
VARIANCE REPORT (CHANGES SINCE LAST CIP AMENDMENT)

	Aug 1999 CIP	Jan 2000 CIP	Variance	Aug 1999 CIP	Jan 2000 CIP
11010S South Valley Lateral - MacDonald Ranch Extension	$1.7	$1.7	$0.0		
11010W South Valley lateral - Disinfection	$0.5	$0.5	$0.0		
11010X Black Mountain Rate of Flow Control Station	$2.6	$2.6	$0.0		
11010Z R-8 Lateral (24" - 0.8 miles)	$1.1	$1.1	$0.0		
12010A SNWS Phase II Mass Excavation	$2.1	$2.1	$0.0		
12010B SNWS Phase II System "C"	$67.3	$67.3	$0.0		
Land Acquisition (Capital Costs)	$5.8	$5.8	$0.0		
Indirect Costs	$36.5	$36.2	($0.3)		
11010J South Valley Lateral Communications	$2.5	$2.6	$0.1		
11010T South Valley Lateral Controls	$1.0	$1.0	$0.0		
Indirect Costs	$0.3	$0.4	$0.1	$299.1	$299.3
2000 Facilities					
08010C Ozone Addition Predesign	$0.6	$0.6	$0.0		
08010D Site Preparation for Ozone Addition to AMS WTF	$3.6	$3.6	$0.0		
Indirect Costs	$0.5	$0.5	$0.0		
13010A East Valley Lateral - Hollywood/DI to Sloan P.S. (78")	$17.4	$17.7	$0.3		
13010B East Valley Lateral - Sloan PS to Las Vegas Blvd. (78")	$19.0	$19.0	$0.0		
13010C East Valley Lateral - Las Vegas Blvd. to Lamb PS (78")	$15.5	$15.5	$0.0		
13010D Sloan 2160 Pumping Station (20 mgd)/Structure (175 mgd)	$27.5	$27.5	$0.0		
13010E Lamb 2350 Pumping Station (20 mgd)/Structure (175 mgd)	$23.5	$23.4	($0.1)		
13010F Grand Teton 2330 Reservoir (10 MG)	$11.2	$11.2	$0.0		
13010H Disinfection Facilities - Horizon/Parkway/Bermuda	$3.2	$3.2	$0.0		
13010I Disinfection Facilities - Carlton Square/Twin Lakes	$2.7	$2.7	$0.0		
13010L Disinfection Facilities - East Valley	$0.1	$0.0	($0.1)		
13010W East Valley Lateral - Disinfection	$0.4	$0.4	$0.0		
Land Acquisition (Capital Costs)	$5.6	$5.6	$0.0		
Indirect Costs	$18.8	$18.9	$0.1		
13010G Microwave Upgrade - Fayle to Foothills	$0.3	$0.0	($0.3)		
13010J Communications	$2.5	$2.0	($0.5)		
13010T Controls	$0.6	$0.7	$0.1		
13010U ODSS	$0.3	$0.3	$0.0		
10010M Power - Sloan and Lamb Pumping Stations	$2.5	$2.5	$0.0		
08010W Ozone Comm/Controls at AMSWTF	$0.4	$0.0	($0.4)		
Indirect Costs	$0.4	$0.3	($0.1)	$156.6	$155.6
2001 Facilities					
08010ER Ozone Addition at AMSWTF	$72.9	$74.6	$1.7		
Indirect Costs	$10.7	$10.7	$0.0		
08010W Ozone Comm/Controls at AMSWTF	$0.0	$0.4	$0.4		
10020A CRC Power Development Project (Phase II)	$15.0	$15.0	$0.0		
10020B CRC Power Development Project (Phase III)	$14.3	$14.3	$0.0		
10020D Power Supply Reliability Retrofit (Phase IV)	$5.5	$0.0	($5.5)		
Indirect Costs	$0.8	$0.0	($0.8)	$119.2	$115.0
2002 Facilities					
07010A Lake Mead Intake No. 2 (100 mgd)	$90.1	$90.1	$0.0		
07010B Raw Water Pumping System (100 mgd)	$132.1	$135.6	$3.5		
07010C River Mountains Aqueduct (108")	$16.3	$16.6	$0.3		
07010E BWC Pipeline Relocation	$0.5	$0.5	$0.0		
Indirect Costs	$35.6	$35.4	($0.2)		
08010A Direct Filtration at River Mountains WTF (150 mgd); Ozone at RMWTF (150 mgd); Clearwell Exp. (50 MG)	$164.2	$171.8	$7.6		
08010B Prepurchase Oxygen/Ozone Equipment (AMSWTF & RMWTF)	$13.9	$14.0	$0.1		
Indirect Costs	$27.0	$27.0	$0.0		
13510A Boulder City Water Delivery Improvements	$24.0	$24.0	$0.0		
14010A N. Valley Lateral, Washburn Rd to Decatur 2350 Res. (72" & 42")	$21.2	$10.3	($10.9)		
14010B Carlton Square Lateral, Cole Ave to Washburn Rd (42")	$10.2	$9.4	($0.8)		

APPENDIX E
VARIANCE REPORT (CHANGES SINCE LAST CIP AMENDMENT)

	Aug 1999 CIP	Jan 2000 CIP	Variance	Aug 1999 CIP	Jan 2000 CIP
14010C Gowan 2350 Pumping Station (24 mgd)	$7.1	$7.8	$0.7		
14010D Decatur 2350 Reservoir (20 MG)	$9.8	$9.8	$0.0		
14010E Deer Springs Rate of Flow Control Station	$4.9	$3.9	($1.0)		
14010F Foothills Pumping Station Turbine Project	$2.3	$2.6	$0.0		
14010G Greenway Rate of Flow Control Station	$2.3	$2.3	$0.0		
14010W North Valley Lateral - Disinfection	$0.5	$0.0	($0.5)		
Land Acquisition (Capital Costs)	$2.9	$2.9	$0.0		
Indirect Costs	$12.3	$10.6	($1.7)		
08010J Communications Sys for Intake Sys & RMWTF	$1.2	$4.5	$3.3		
08010T Controls - Out-Valley	$1.0	$3.4	$2.4		
10010N Power - Gowan Pumping Station	$0.6	$0.6	$0.0		
14010J Communications - North Valley Lateral	$1.6	$4.1	$2.5		
14010T NVL Control System	$0.0	$1.1	$1.1		
10020D Power Supply Reliability Retrofit Project (Phase IV)	$0.0	$5.5	$5.5		
Indirect Costs	$0.3	$2.1	$1.8	$582.2	$595.9
2003 Facilities					
08010V Ozone Training and Start-up Services	$0.0	$0.4	$0.4		
17010C North Valley Lateral, Decatur 2538 Pumping Station to Beltway	$0.0	$22.0	$22.0		
Indirect Costs	$0.0	$3.3	$3.3	$0.0	$25.7
2004 Facilities					
17010A East Valley Lateral, River Mtns. Res. to Desert Inn Rd.	$56.7	$56.6	($0.1)		
17010B North Valley Lateral, Grand Teton 2330 Res. to Valley Drive	$40.8	$39.7	($1.1)		
17010C North Valley Lateral, Decatur Blvd. to Durango Rd.	$27.5	$0.0	($27.5)		
17010D Sloan 2160 PS Expansion (91 mgd/111 mgd total)	$12.0	$12.0	$0.0		
17010E Lamb 2345 PS Expansion (91 mgd/111 mgd total)	$7.6	$7.6	$0.0		
17010F Decatur 2538 Pumping Station (33 mgd)/Structure (78 mgd)	$20.7	$20.4	($0.3)		
Land Acquisition (Capital Costs)	$7.2	$7.2	$0.0		
Indirect Costs	$25.5	$21.2	($4.3)		
10010P Power - Decatur 2538 Pumping Station	$0.6	$0.6	$0.0		
17010J Communications	$1.9	$4.4	$2.5		
17010T Controls	$4.7	$3.5	($1.2)		
17010U ODSS	$0.6	$0.6	$0.0		
Indirect Costs	$0.8	$1.0	$0.2	$206.6	$174.8
2005 Facilities					
15010A RM 2530 PS Expansion (7 mgd/14 mgd total)	$0.5	$0.5	$0.0		
Indirect Costs	$0.1	$0.1	$0.0	$0.6	$0.6
2006 Facilities					
07210A Intake Pumping Station IPS-2 Expansion (100 mgd/200 mgd total)	$8.1	$8.1	$0.0		
07210B Booster Pumping Station BPS-1a Expansion (100 mgd/200 mgd total)	$9.6	$9.6	$0.0		
07210C Booster Pumping Station BPS-2 Expansion (100 mgd/200 mgd total)	$7.9	$7.9	$0.0		
Indirect Costs	$3.9	$3.9	$0.0		
16010A RM 2530 PS Expan - Phase 2 Building Pumps (105 mgd/245 mgd total)	$32.7	$32.7	$0.0		
Indirect Costs	$5.1	$5.0	($0.1)		
16010J Communications	$0.1	$1.0	$0.9		
16010T Controls	$0.6	$0.6	$0.0		
16010U ODSS	$0.2	$0.2	$0.0		
Indirect Costs	$0.1	$0.2	$0.1	$68.3	$69.2
2008 Facilities					
08210A Direct Filtration Expansion at RMWTF (150 mgd/300 mgd total)	$145.2	$145.2	$0.0		
Clearwell Expansion (25 MG/75 MG total)					
08201B Ozone Expansion at RMWTF (150 mgd/300 mgd total)	$6.5	$6.5	$0.0		
Indirect Costs	$23.4	$23.4	$0.0	$175.1	$175.1
2011 Facilities					
07410A Intake Pumping Station IPS-2 Expansion (100 mgd/300 mgd total)	$9.4	$9.4	$0.0		
07410B Booster Pumping Station BPS-1a Expansion (100 mgd/300 mgd total)	$11.1	$11.1	$0.0		

APPENDIX E
VARIANCE REPORT (CHANGES SINCE LAST CIP AMENDMENT)

		Aug 1999 CIP	Jan 2000 CIP	Variance	Aug 1999 CIP	Jan 2000 CIP
07410C	Booster Pumping Station BPS-2 Expansion (100 mgd/300 mgd total)	$9.2	$9.2	$0.0		
	Indirect Costs	$4.5	$4.5	$0.0	$34.2	$34.2
	2012 Facilities					
19010A	Horizon Ridge 2375 Reservoir Expansion (20 MG)	$9.6	$9.6	$0.0		
	Indirect Costs	$1.5	$1.5	$0.0	$11.1	$11.1
	2014 Facilities					
20010A	Sloan 2160 Pumping Station Expansion (64 mgd/175 mgd total)	$12.6	$12.6	$0.0		
20010B	Lamb 2345 Pumping Station Expansion (64 mgd/175 mgd total)	$7.9	$7.9	$0.0		
20010C	Decatur 2538 Pumping Station Expansion (45 mgd/78 mgd total)	$7.9	$7.9	$0.0		
20010D	Decatur 2350 Reservoir Expansion (10 MG/30 MG total)	$9.8	$9.8	$0.0		
	Indirect Costs	$5.8	$5.8	$0.0	$43.9	$43.9
	2017 Facilities					
21010A	River Mountains 2530 PS Expansion - Phase 2 Pumps (170 mgd/315 mgd total)	$11.5	$11.5	$0.0		
	Indirect Costs	$1.8	$1.8	$0.0	$13.3	$13.3
				$6.4	$2,001.5	$2,007.9

Notes:

1. Dollars are in millions and rounded to the nearest $100,000.

STATEMENT OF HON. ANTHONY WILLIAMS, MAYOR, WASHINGTON, DC

Good afternoon Chairman Reid, Senator Inhofe, and members of the committee. Thank you for this opportunity to testify before the Committee on Environment and Public Works' Subcommittee on Transportation and Infrastructure.

Before I begin, I wish to also acknowledge Mayor Marc Morial of New Orleans, the new president of the U.S. Conference of Mayors and a strong voice for transportation improvements, especially rail transportation. The Council of Mayors has been focusing on the transportation and infrastructure issues that are facing are major cities.

Transportation is a critical issue to the general public. In fact, in Washington, DC, transportation was picked as the second most important issue in our Neighborhood Action planning sessions—second only to public safety. Neighborhoods are concerned about traffic, pedestrian safety, parking, development, and mobility. All issues that become increasingly significant as we attempt to increase the District's population by an additional 100,000 residents over the next 10 years.

THE DISTRICT AND THE REGION

I am sure you are all aware that nationally, the Washington Metropolitan area is classified as the third most congested area in the country. The District, though, can be part of the solution to this problem. Already, the District is the core of the metropolitan region and of the regional transportation network. It plays a vital role in the economic health of the region and in the region's transportation. One-third of the region's office space and nearly 500,000 jobs are located here. And these jobs are concentrated. We have the second largest concentration of jobs in the country, after New York City and tied with downtown Chicago.

Job concentration is part of the solution to gridlock because it reduces travel distances and the number of trips. Also, concentrated job centers can be more efficiently served by mass transportation. Washington, DC is second only to New York City in the number of commuters who use mass transit every day. More than 50 percent of District residents use mass transit for their home to work trip each day. This saves energy and saves money that would have to go into building many more highway lanes to serve those riders if they drove.

However, many people do drive to the District each day. The District is already second only to New York City's Manhattan in the number of cars that enter downtown every weekday. These users of the District's road infrastructure are largely from outside the city. In fact, approximately 70 percent of the cars on our roads each day are registered outside the District—and because of the District's unique financial structure, these vehicles do not contribute significantly to the maintenance and capital costs they impose directly on our transportation infrastructure.

The District is also the largest contributor to the operations and capital costs of the Washington Metropolitan Area Transit Authority (WMATA)—known to most as METRO. The District pays nearly 40 percent of both operating and capital costs of the METRO system. And while the recent growth in METRO ridership, the highest in the country in some categories, ensures traffic does not come to a complete standstill, it has a substantial impact on the District's finances. Its like that old joke: "We're losing money on every unit, but we are making up in volume." Metro ridership increases cost the District more each year in operating subsidy payments, increasing roughly 10 percent between fiscal years 2001 and 2002—one of the largest jumps in any District program.

THE FEDERAL PRESENCE

The Federal presence has a major impact on the District's unique transportation role. Federal workers account for one-third of METRO riders and as the District's largest employer, the Federal presence adds to the heavy burden on our roads.

This special relationship to Washington and the region has not gone unrecognized by the Federal Government over time. There have been significant Federal contributions to two of the most important regional transportation projects ever undertaken. These are the long-term investment in METRO and the new Wilson Bridge. Both of these attest to the role the District can play as a model for transportation improvements. METRO and the new Wilson Bridge show that the Federal Government has recognized the unique role the District plays in the region and as the Nation's Capital.

Thus, as we examine how to maintain and improve the District's transportation infrastructure, we look for the Federal Government to assume a special role in recognition of this special relationship.

Maintaining this transportation infrastructure, much less improving or expanding it is very costly. While Federal Transportation Equity Act for the 21st Century (TEA–21), has provided almost $100 million per year in much needed assistance for transportation capital, operations and maintenance, this is not enough.

This inequity can be summed up as a "tale of two cities" for our non-transit transportation infrastructure. One is the Federal City. This is a city with less than 450 miles of roads and a $250,000 annual per mile fund for maintenance and improvements. Not surprisingly, more than 70 percent of these roads are in good or excellent condition.

The other is the local city with nearly 650 miles of roads that have just come out of a 5-year period of almost no investment. Although we are now spending $8,500 per year per mile for maintenance or improvements, 50 percent of local roads remain in fair or poor condition.

TRANSPORTATION FUNDING FOR TODAY

As you can see, shortfalls in transportation funding represent one of the biggest challenges to improving mobility in the District and the region and keeping it economically viable. The District, as part of the region's long term transportation planning process, identified anticipated funding sources over the next 25 years at $11 billion. This includes both $100 million per year in Federal aid and local taxes dedicated to the transportation system.

A 1998 lifecycle analysis by the Federal Highway Administration found an anticipated $1 billion needed in the next 6 years for transportation improvements. Since the study, our needs have increased as have our costs, further exacerbating the funding dilemma.

Unfortunately, this level of funding will not keep pace with the continuing need to rehabilitate, maintain and expand transit services, resurface streets, fill potholes, fix curbs and sidewalks, provide bikeways and implement other traffic calming and roadway safety improvement projects.

Perhaps the single largest long-term transportation-related financial constraint facing the District and the region is the investment needed in METRO in the forthcoming 10 to 25 years. METRO estimates a $3 billion preservation funding gap over 25 years for the its Infrastructure Renewal Program, with the District's share being $1.2 billion. This is over-and-above what the District has already pledged to METRO improvements. In addition, METRO capital needs are underfunded by $100 million annually, representing another $40 million in unfunded District obligations. These investments are needed to simply maintain the METRO's ability to deliver its core services given the current rate of ridership growth.

The District, like other cities, also face a brewing problem under its streets. Aging utility infrastructure, including power and gas lines, as well as new technologies (such as fiber optic lines) are putting strains on cities' ability to manage and control their rights-of-way. Perhaps most challenging is the problem of combined sewers. In the District alone, this largest source of water pollution will cost upwards of $1 billion to address.

One of the most creative proposals to meet this need has been put forward by our Congresswoman, Eleanor Holmes Norton. Her D.C. Non-resident Tax Credit Act proposal would transfer to the District an amount equivalent to 2 percent of the income earned by non-District residents working in the city. This would produce some $400 million for the District and earmarking a part or all of this for transportation improvements would make a significant dent in the District's, and the region's transportation needs.

Clearly, funding shortfalls represent one of the biggest challenges to improved mobility in Washington, DC. and in the regions. Working on long-term—25-year—regional funding needs, we have discovered that both Maryland and Virginia are experiencing similar challenges and we look forward to working with Congress and our neighboring jurisdictions on solving our shared transportation problems.

TRANSPORTATION INFRASTRUCTURE FOR TOMORROW

While funding our existing infrastructure is a major concern to the District, we need to look beyond what we are doing today. For the last 15 or 20 years the District has been largely replacing or rehabilitating its existing transportation system—major pieces of which are nearing their useful life. Therefore, we are now presented with a once-in-a-lifetime opportunity to plan, design and build the transportation system for the new millenium, serving our city, its citizens and visitors as they now live, work and play.

We need to look at our major transportation gateways and devise ways to make them more attractive and functional. For example, the New York Avenue and South

Capitol Street corridors do not present the appropriate grand entrance into our city that they should. Major bridge projects such as the Theodore Roosevelt and South Capitol Street bridges represent opportunities to redesign these connections in a way that suits our monumental city and better serves commuters, citizens and guests.

Pennsylvania Avenue should be reopened in a way that both serves the needs of the 26,000 citizens who used to pass by the White House each day and those who live and work within that historic structure. The access to the Kennedy Center needs to be improved, reuniting that world-class facility for the arts with the rest of the District and the monumental core.

Access to and around our hidden jewel, our Anacostia waterfront needs to be enhanced by building the Anacostia Riverwalk and improving access across the Anacostia freeway. Our other freeways, the Southeast/Southwest and the Whitehurst have to be studied for ways to alleviate the barrier they represent between communities and the Georgetown Waterfront, respectively.

We also need to look at our transit infrastructure and how we can grow that to support the District's own rebirth and internal mobility needs. Two new transit routes that need to be explored include building—finally—the long needed subway connection to Georgetown. In addition, the District should revisit the mistake made almost exactly 40 years ago when Congress mandated the removal of our world-class light rail system. Possible routes for a new trolley include the then-most popular trolley route—and currently most popular bus route—of Georgia Avenue to Seventh Street. This route could connect with the new Convention Center, our reawakening retail district and the reborn Anacostia waterfront, and Southeast Federal Center.

The District is also looking at the longer term future of transportation by joining with Maryland to compete for a federally-sponsored Magnetic Levitation Rail (MAGLEV) demonstration project. If funded, this project would whisk riders between Washington and Baltimore in roughly 20 minutes—essentially rendering each city a neighborhood of the other. This sort of aggressive, visionary thinking is what Washington and Baltimore will need in order to successfully compete for the 2012 Olympic Games.

WASHINGTON, DC REBORN

Our Olympic bid signifies the culmination of the process we have begun in rebuilding Washington, DC in terms of its financial stability, its attractiveness as a home, its perception and reputation and its importance in the region. As part of this symbolic rebirth we must commit to rebuilding, refreshing and improving the arteries and passageways that serve our Nation's Capital.

I believe that one can tell a lot about how a city is doing by looking at its infrastructure—its roads and trees and sidewalks and signs. A city that is doing well and is well managed has a well-maintained infrastructure. It sends a signal to its citizens and visitors through its transportation infrastructure—its largest, most valuable and visible asset—that it cares and is a good steward of resources entrusted to it. We have made great strides during my administration to send that message and I look forward to working with each of you, the committee and Congress to keep moving forward.

Thank you.

STATEMENT OF ROBERT W. PORTISS, PORT DIRECTOR, TULSA PORT OF CATOOSA

Thank you Mr. Chairman. My name is Robert W. Portiss. I am the port director for the Tulsa Port of Catoosa, a 2,500-acre inland, international seaport located about 10 miles northeast of the City of Tulsa in Rogers County, OK. I am employed by the City of Tulsa, Rogers County Port Authority, a public agency.

My employment with the Port began in 1973 as manager of traffic and sales, a position I held until the end of 1974 when I opted for land development experience in the private sector. I returned to the Port 3 years later and, following a series of promotions, was appointed port director, a position I have held since 1984.

Oklahoma began offering barge transportation in December 1970 when the McClellan-Kerr Arkansas River Navigation System was completed. This System begins at the confluence of the White and Mississippi Rivers located approximately 500 miles north of New Orleans on the Mississippi River, and extends 445 river miles through Arkansas and Oklahoma. Seventeen locks and dams permit barge freight to stair-step the 420-foot elevation change to reach our Port at the head of navigation.

Authorized by the River and Harbors Act of 1946, the McClellan-Kerr Arkansas River Navigation System cost $1.2 billion to build. This, in turn, has resulted in

over $3.2 billion of non-Federal public and private investment in Oklahoma and Arkansas, creating over 55,000 jobs. Freight handled on the system currently averages 12-million tons per year carried in 8,000 barges. This is the equivalent capacity of 120,000 rail cars or 500,000 trucks to carry the same amount of freight adding significant congestion to the already constrained rail and highway systems. Less trucks on our Nation's highways is welcomed by all of us because of less congestion, wear and tear on our roadways, and energy savings.

All of this was made possible by a joint venture offered to Arkansas and Oklahoma. The offer was simple—the Federal Government would build a waterway to Oklahoma if the five principal cities located along the system would each build a public port providing access to barge navigation. Tulsa was one of those cities.

Their commitment delivered what I believe is the largest fully-developed inland port complex in our country today. I know of no other port that has 2,500 acres of contiguous land area. This land and the initial infrastructure was paid for through a $21.2 general obligation bond issue by the citizens of the city of Tulsa and Rogers County. That seed money has since grown to over $45 million in public investment through reinvestment of income earned off the land, which incidentally is only leased to preserve access to low-cost water transportation, as promised, for future generations. That money, in turn, has already precipitated some $300 million in private investment generated by the 53 companies now located within the complex who currently employ 3,000 people. Obviously, the joint venture has worked well for our States and for the Nation—at least thus far.

The future success of the System will depend, in great part, on whether Congress will continue to provide, maintain and operate our Nation's waterway infrastructure. The current outlook is not favorable. If the President's budget recommendations are adopted, the critical maintenance backlog will more than double—from $415 million to $835 million. Locks and dams and other capital stock along our Nation's waterways are aging and severely deteriorating. As an example, over 44 percent of the inland waterway's locks and dams are at least 50 years old. Many are undersized for modern commercial barge tows, which must then be broken up and reassembled at each lock. This results in delays, increasing operating costs, decreasing efficiency and causes safety and environmental concerns. It is estimated that nationwide, river traffic is delayed 550,000 hours annually, representing an estimated $385 million in increased operating costs borne by shippers, carriers, and ultimately, consumers. These delays, which are in the range of $250 to $350 per hour for a 15 barge tow, will become more severe as system traffic grows and as aging infrastructure increases maintenance and repair time.

Sadly, the current trend is to keep studying the problem rather than fixing it. As an example, the current study concerning the modernization of the Illinois and upper Miss has been underway for about 11 years at a cost of $54 million and yet, we are not closer to finalizing the study today then we were in 1990. All of this and more is set forth in the Marine Transportation System Survey and Analysis completed by the U.S. DOT several years ago.

Favorable congressional action is also required at the local level. Montgomery Point Lock and Dam, which is currently being constructed in the entrance channel to the McClellan-Kerr Arkansas River Navigation System, is destined for shut down this year due to a probable severe shortfall in Federal funding. The project needs $45 million for fiscal year 2002, and to date the President and Congress have only allocated $25 million. This funding deficiency will reportedly force the Corps of Engineers to curtail construction pending funding in fiscal year 2003. We, therefore, would not realize the benefits derived from the $152 million already spent on it and will increase the overall construction costs. Delaying this project could also shut down our waterway due to inadequate water depths for barges. We, of course, would then be out of the waterway business altogether.

Another item affecting our future is increasing the authorized depth of the McClellan-Kerr from 9 to 12 feet enabling us to operate at peak capacity. We believe this would significantly improve our Nation's competitive advantage in world markets. Being able to load barges more fully—approximately 100 truck loads rather than the current 60 truck loads—would lower the cost of products thereby enhancing our customer's ability to compete in world trade. Rivers flowing to the Gulf Coast already have 12-foot channels.

The U.S. Army Corps of Engineers has begun installing tow haulage equipment on our locks—all but five have been completed. This equipment locks through nine barges leaving the towboat and up to an additional eight barges to subsequently lock through thereby efficiently doubling the capacity of our locks without having to construct new structures. Federal funding for this important infrastructure project, like our lock and dam project, will reportedly be significantly reduced or curtailed for fiscal year 2002.

Recent versions of TEA–21 or NEXTEA can help meet local infrastructure needs through funding of multi-modal connecting links to enable barge, rail, truck, and air transportation to work together in an optimal manner. To date, our efforts to obtain any of this funding have not been successful. The concept makes good sense, but for some reason it is not happening. Connecting rail lines and roads could be significantly improved through this program.

Before closing, I would be remiss in my duties if I did not mention the Endangered Species Act. If this Act is to be reauthorized, it simply must be done through needed reforms. The implementation of its provisions has resulted in projects being stopped permanently without regard to the social and economic good of our Nation.

In conclusion, it is past time for Congress to take responsibility for providing the funds necessary to rebuild, rehab, maintain and modernize our Nation's inland waterway navigation system. Our system has been the envy of the world for decades. Now the rest of the world is taking up the challenge with the realization that water is the only way to remove significant amounts of freight from the highways. U.S. inland waterway ports and terminals—about 1,800 of them—are less concentrated geographically than our deep-water ports thereby being able to provide almost limitless access points to barge transportation. The result is greater flexibility to the users in determining the location of industrial facilities requiring water access.

Our congressional and State leaders MUST understand that maintaining a viable national inland waterway transportation system and protecting the environment are not mutually exclusive objectives. They can be accomplished by encouraging local and Federal agencies to work together as in past years, thereby providing jobs and enabling us to effectively compete in the international market place. The alternative of abandoning the system that has permitted our Nation to be strong, and which has proven to be a good Federal investment, is clearly not in our best interest.

Thank you.

STATEMENT OF PETER F. GUERRERO, DIRECTOR, PHYSICAL INFRASTRUCTURE ISSUES, U.S. GENERAL ACCOUNTING OFFICE

Mr. Chairman and members of the subcommittee. A sound public infrastructure plays a vital role in encouraging a more productive and competitive national economy and meeting public demands for safety, health, and improved quality of life. In addition, public office buildings, courthouses, and other facilities support noneconomic goals and allow Federal agencies to carry out their missions. When problems occur with the performance of infrastructure, they can be very visible, and their effects can be widespread. For example, traffic congestion in the Nation's 50 most populous urban areas is estimated to cost over $39 billion a year in time and wasted fuel.

I am here today to discuss the Federal Government's role in ensuring a sound public infrastructure and the estimates of future investment requirements developed by seven Federal agencies: the Appalachian Regional Commission (ARC), Environmental Protection Agency (EPA), Federal Aviation Administration (FAA), Federal Highway Administration (FHWA), Federal Transit Administration (FTA), General Services Administration (GSA), and U.S. Army Corps of Engineers.[1] My testimony will focus on the major areas of public infrastructure covered by these seven agencies[2] and the Federal Government's role and funding trends regarding civilian infrastructure.

In summary, we found:

• The Federal Government exerts an important influence on infrastructure investment and development. The Federal Government's influence can be seen in several ways, including acquiring and maintaining various federally-owned assets, providing funding for infrastructure that is owned and operated by others, and influencing the way infrastructure projects are designed and built through legislation and regulations.

The Federal Government has spent an average of about $59 billion annually since the late 1980's on the Nation's civilian infrastructure. This spending showed a slightly upward trend through the 1990's. Similarly, spending by State and local

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[1] This testimony is based on our recent work in the area of infrastructure investment trends and investment estimates. See *U.S. Infrastructure: Agencies' Approaches to Developing Investment Estimates Vary (GAO–01–835,* July 20, 2001) and *U.S. Infrastructure: Funding Trends and Opportunities to Improve Investment Decisions* (GAO/RCED/AIMD–00–35, Feb. 7, 2000).

[2] The seven agencies develop infrastructure estimates for highways (ARC and FHWA), water supply and wastewater treatment (EPA), airports (FAA), mass transit (FTA), public buildings (GSA), and water resources and hydropower (Army Corps).

governments continued an upward trend that began in the 1980's and exceeded Federal spending in certain areas.

• The seven agencies we reviewed each estimated billions of dollars for future investment in infrastructure. The estimates focused on investment in the areas of water resources, hydropower, water supply, wastewater treatment, airports, highways, mass transit, and public buildings. The estimates ranged from GSA's calculation of $4.58 billion (in current dollars)[3] to repair public buildings over the next 5 years to FHWA's estimate of $83.4 billion (in constant 1997 dollars)[4] per year over 20 years to improve highways. Certain estimates, such as those prepared by the Army Corps (for water resources and hydropower) and GSA, are for Federal spending; other estimates involve all levels of government and the private sector.

• Some perspective is called for in reviewing the investment estimates developed by the seven agencies. While these estimates encompass major areas of public infrastructure, they cannot be easily compared or simply "added up" to produce a national estimate of infrastructure investment needs because, for example, they were developed using different methods and were for different time periods. In addition, the seven agencies all had procedures for developing investment estimates that reflect some practices used by leading private sector and government organizations, although some agencies followed more practices than other agencies. Nonetheless, following the leading practices does not ensure a quality investment estimate and each estimate had limitations associated with the quality of the data used in developing it. Furthermore, some of these investment estimates span several decades and investment needs can change significantly over time due to changes in the efficiency of delivering infrastructure services or pricing strategies that alter the demand for services. Finally, these estimates mostly focus on the condition of infrastructure rather than the desired outcomes (e.g., less traffic congestion) that can be expected from additional infrastructure investments. We caution against relying on estimates of need that are based primarily on the condition of existing infrastructure if desired outcomes are not clearly articulated and the costs and benefits of alternative approaches (such as using strategies to manage demand rather than building new infrastructure) for achieving those outcomes are not fully considered.

We did not independently verify the seven agencies' investment estimates, but we did rely on past reviews of these data by us and others that examined the soundness and completeness of the methodology and/or data used to develop the estimates. We reviewed agencies' documentation of their procedures to develop the estimates, but we did not verify whether these procedures were followed. In addition, we compared agencies' procedures with some of the capital decisionmaking practices used by leading government and private sector organizations that we identified and reported on in 1998.[5] Those leading practices are identified in appendix I.

THE FEDERAL ROLE IN CIVILIAN INFRASTRUCTURE INVESTMENT AND DEVELOPMENT AND TRENDS OF GOVERNMENT SPENDING

While most spending on civilian infrastructure takes place at the State, local, or private-sector level, the Federal Government exerts an important influence on infrastructure investment and development in several ways. First, the Federal Government is directly responsible for acquiring and maintaining various federally-owned assets. These include, for example, Federal office buildings, dams and flood control structures, and the Nation's air traffic control system. The Congress directly appropriates the funding for such infrastructure. Second, the Federal Government provides funding—such as grants, loans, or loan guarantees—for infrastructure that is owned and operated by others such as mass transit systems and municipal water supply systems. In these cases, Federal funds cover a portion of the capital development and improvements required. For example, the Department of Transportation provides States, localities, and others with grants that partially fund the construction and improvement of urban and rural highways and bridges, including major maintenance of interstate highways; the States generally provide a 20-percent match for these funds and determine how to spend the money within broad Federal guidelines. Third, the Federal Government influences infrastructure investment through tax incentives. For example, the interest on municipal bonds, which are primarily used for infrastructure purposes, is exempt from Federal taxes. Finally, Federal legislation and regulation influence both the need for and the way infrastruc-

[3] "Current dollar" is the dollar value of a good or service expressed in terms of prices current at the time the good or service is sold.

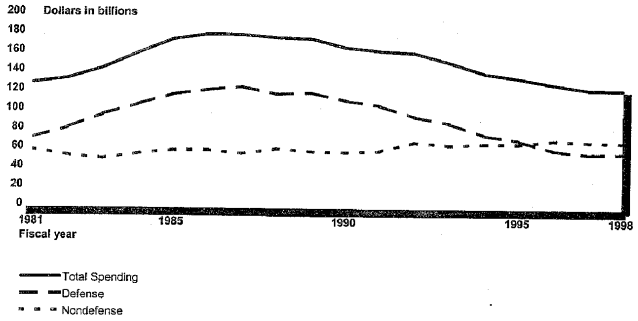
[4] "Constant dollar" is a dollar value adjusted for changes in the average price level (i.e., adjusted for inflation) for a base year.

[5] *Executive Guide: Leading Practices in Capital Decisionmaking* (GAO/AIMD–99–32, Dec. 1998).

ture projects are designed and built. For example, meeting safe drinking water standards may often require the construction or modification of local water systems.

The Federal Government has spent an average of $150 billion (in constant 2000 dollars) annually since the early 1980's for civilian and defense infrastructure. Of this amount, about $59 billion was spent annually for spending on civilian infrastructure.[6] As figure 1 shows, Federal spending for civilian infrastructure showed a slightly upward trend through the 1990's.

FIGURE 1: FEDERAL SPENDING ON INFRASTRUCUTRE IN 2000 DOLLARS, FISCAL YEARS 1981 THROUGH 1998



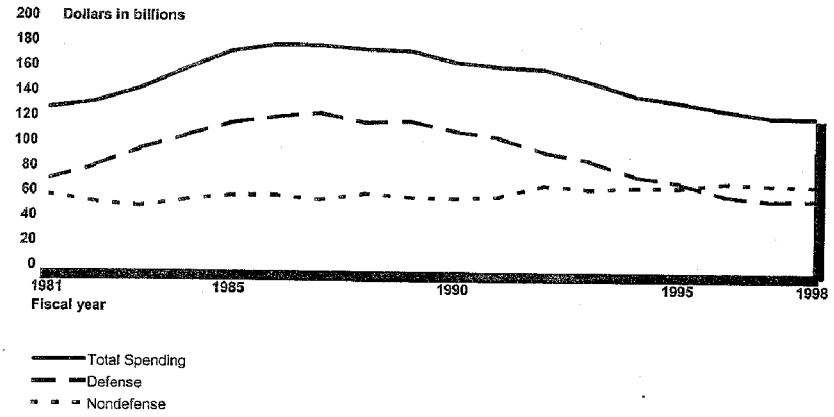
Source: GAO's analysis of OMB's data.

Similarly, as figure 2 shows, spending by State and local governments continued an upward trend after netting out inflation that began in the 1980's and exceeded Federal spending in certain infrastructure areas. A 1999 Congressional Budget Office (CBO) study reported that State and local spending for transportation and water resources, supply, and treatment rose from over $88 billion (in 2000 dollars) in fiscal year 1981 to $152 billion in fiscal year 1994.[7]

[6] We used information from OMB's budget data base to analyze actual Federal infrastructure outlays (spending) for fiscal years 1981 through 1998, using a broad definition for infrastructure spending that included the physical structure and facilities that are intended to enhance the private sector's long-term productivity, as well as spending for physical capital designed to achieve Federal agencies' goals or improve the Government's efficiency. OMB's budget data base does not contain State and local spending for infrastructure. See *U.S. Infrastructure: Funding Trends and Opportunities to Improve Investment Decisions (GAO/RCED/AIMD–00–35,* Feb. 7, 2000).

[7] See *Trends in Public Infrastructure Spending*, Congressional Budget Office (May 1999). CBO defined infrastructure to include spending for highway, mass transit, rail, aviation, water transportation, water resources, water supply, and wastewater treatment. State and local spending excludes Federal grants and loans.

FIGURE 2: STATE AND LOCAL SPENDING FOR SELECTED INFRASTRUCTURE AREAS IN 2000 DOLLARS, FISCAL YEARS 1981 THROUGH 1994



Source: GAO's analysis of OMB's data.

FEDERAL ESTIMATES OF FUTURE INFRASTRUCTURE INVESTMENT

The seven agencies we reviewed each estimated that billions of dollars were needed for investment in infrastructure. The estimates focused on investments in the areas of water resources, hydropower, water supply, wastewater treatment, airports, highways, mass transit, and public buildings and spanned from several years to several decades. The investment amounts vary from GSA's estimate of $4.58 billion over the 5 years to repair public buildings to FHWA's estimate of $83.4 billion each year over 20 years to preserve and improve the Nation's highways. The investment estimates are summarized in table 1.

Table 1.—Selected Agencies' Infrastructure Investment Estimates

Agency	Activities and assets included in estimate	Activities and assets excluded from estimate	Time period covered	Total estimate (in billions)
ARC	Construction of highways within portions of 13 States.	Maintenance, retrofit, or improvements to completed highways.	1997-completion	$8.5 (current 1995 dollars)
Army Corps	Construction and major rehabilitation of water resources projects and major rehabilitation of hydropower projects nationwide.	Nonconstruction costs, projects not under construction, and critical operations and maintenance work.	2001-completion	$38.0[a]
EPA	Construction and upgrade of drinking water supply systems nationwide.	Costs due solely to population growth and costs not eligible for Federal funding.	1999–2018	$150.9 (current 1999 dollars)
EPA	Construction and upgrade of wastewater treatment collection facilities nationwide.	Costs due solely to population growth and costs not eligible for Federal funding.	1996–2016	$139.5 (current 1996 dollars)

Table 1.—Selected Agencies' Infrastructure Investment Estimates—Continued

Agency	Activities and assets included in estimate	Activities and assets excluded from estimate	Time period covered	Total estimate (in billions)
FAA	Construction, replacement, and rehabilitation of airport facilities nationwide.	Costs not eligible for Federal funding.	1998–2002 $35.1 (constant 1998 dollars).	
FHWA	Improvements to the Nation's highways based on several scenarios[b].	Costs to construct new roads.	1998–2017	$50.8–$83.4 per year for 20 years[b] (constant 1997 dollars)
FTA	Replacement and refurbishing of mass transit vehicles and facilities nationwide based on four scenarios[c] and construction of new systems.		1998–2017	$10.8–$16.0 per year for 20 years[c] (constant 1997 dollars)
GSA Repair and alteration of public buildings.	Buildings owned by Federal agencies other than GSA.	Up to 5 years	$4.58[a].	
GSA	Construction of border stations, Federal office buildings, and courthouses.		Up to 7 years	$0.75 to $0.8 per year for 5 to 7 years[a]

[a]Current year dollars from different dates.

[b]FHWA modeled several scenarios—including cost beneficial investment needed to maintain the current physical condition—that provided a range of estimates.

[c]FTA's analysis included scenarios that produced estimates ranging from investments needed to maintain current condition and performance of mass transit to investments needed to improve its current condition and performance.

Note: Estimates for the Army Corps and GSA are Federal investments. Estimates for the remaining agencies are a combination of Federal, State, and other investment sources.

Source: GAO's analysis of agencies' data.

Each of the seven agencies used data from various localities, States, or agency regional offices and aggregated those data to produce a national estimate for infrastructure investment. Each agency's estimate is described below.

Appalachian Regional Commission

In 1997, ARC estimated that it would cost $8.5 billion from State and Federal sources to complete the Appalachian Development Highway System, a 3,025-mile system of highways in 13 States.[8] The estimate includes costs for project design, environmental mitigation, rights of way access, and construction. These costs were not adjusted for inflation. They do not include maintenance, retrofits, or safety improvements to completed segments of the highway system. According to ARC officials, the estimate is probably understated due to the limited amount of detailed information available in 1997 and because the estimate was prepared before obtaining public input or identifying and addressing environmental or historic preservation concerns about specific highway corridors. To produce the estimate, each of the 13 States estimated the cost to complete the system within their State using instructions provided by ARC and FHWA. ARC and FHWA reviewed the States' estimates to ensure uniformity and accuracy and assessed the reasonableness of the cost estimates by comparing them to the costs of similar highway projects within the State.[9] ARC uses this estimate as the basis for allocating Federal funds appropriated for the Appalachian Development Highway System. ARC distributes the funds to the 13 States on the basis of their percentage share of the cost to complete the highway system. ARC plans to issue an updated estimate in 2002.

[8] Appalachia includes all of West Virginia and parts of 12 States: Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, and Virginia. The Appalachian Highway System is funded by the Federal Highway Trust Fund and a State match of no less than 20 percent.

[9] This activity reflects a leading practice.

U.S. Army Corps of Engineers

As of March 30, 2001, the Army Corps estimated that $38 billion in Federal funds was required to complete water resources and hydropower infrastructure projects already under construction.[10] That amount includes about $37 billion for construction of new water resource projects, $582 million for work at hydropower plants, and $217 million for major rehabilitation of water resource projects. These amounts were not adjusted for inflation. The overall estimate does not include critical operations and maintenance work for water resources and related land projects; for fiscal year 2002, the Army Corps estimated it would require $915 million for such work. The $38 billion estimate excludes projects that are not under construction, such as those in the design stage, and costs not related to construction, such as feasibility studies and evaluations. Army Corps officials believe that the overall estimate might be understated because it does not consider increases in the cost of completing a project over time due to changing economic conditions. The estimate is the aggregate of individual infrastructure projects. Local governments, groups, and/or private citizens who requested assistance from the Army Corps initially identified the water resources projects included in the estimate.

Engineers and other professionals using existing industry data estimated project costs. The agency also uses cost-benefit analysis to determine which water resources projects are economically justified and would assist the agency in reaching its goals, such as improving navigation and flood mitigation.[11] The evaluation and cost estimate is sent to the agency's headquarters, and selected projects are submitted for funding as part of the Department of Defense's annual budget. Funded projects undergo several lengthy reviews by the Army Corps, including a feasibility study to investigate and recommend solutions to water resources problems.[12] The estimate for hydropower investment projects is based on the Army Corps' inspections, tests, and evaluations of that equipment. The Army Corps uses the investment estimates to determine the financial resources needed to manage and repair assets under its jurisdiction and for new construction.[13]

Environmental Protection Agency

In February 2001, EPA reported an estimated $150.9 billion in Federal, State, and local funds was needed to construct and upgrade drinking water facilities between 1999 and 2018.[14] The estimate excludes costs ineligible for funding under the Drinking Water State Revolving Fund (DWSRF), such as costs arising solely from population growth. The costs were not adjusted for inflation. EPA reported that the estimate may be understated because some needs covered only 2 to 5 years, not the 20-year period. To develop the estimate, EPA surveyed all of the large water systems in the United States and a sample of the medium water systems. In addition, EPA conducted site visits to 599 small systems and extrapolated data from these surveys and site visits to compute the total investment estimate. The States and EPA reviewed the surveys and supporting cost documentation for medium and large systems.[15] The agency uses the results of this estimate to allocate moneys to the States for the revolving fund based on each State's share of the total investment amount.

In 1996, EPA estimated that $139.5 billion in Federal and State funds was needed between 1996 and 2016 for capital investment in water pollution control facilities. The total included $44.0 billion for wastewater treatment, $10.3 billion for upgrading existing wastewater collection systems, $21.6 billion for new sewer construction, and $44.7 billion for controlling combined sewer overflows. These costs were not adjusted for inflation. The estimate did not include annual costs for operations and maintenance and projects that were not eligible for funding under Title VI of the

[10] The Congress provides funding to the Army Corps on a project-by-project basis and each project has a non-Federal cosponsor that shares in the cost. In addition, fees from vessel operators are used to fund half the cost of new construction and major rehabilitation of the commercial fuel-taxed inland waterway system.

[11] This activity reflects a leading practice.

[12] This activity reflects a leading practice.

[13] The Army Corps also had procedures reflecting the following leading practices: establishing a baseline inventory of assets; considering alternative ways to address unmet investment needs, including non-capital approaches; ranking and selecting projects for funding based on established criteria; and developing a long-term capital plan that defines capital asset decisions.

[14] EPA provides funding for the construction and improvement of drinking water and wastewater treatment facilities through grants to capitalize State revolving funds. States provide a matching amount into their revolving funds equal to 20 percent of the total grant. The revolving funds provide several types of financial support, including loans at or below market interest rates, guarantees for the issuance of new local bonds, and purchase of existing bonds.

[15] This activity reflects a leading practice.

Clean Water Act, such as house connections to sewers and costs to acquire land that is not a part of the treatment process. EPA reported that the estimate may be understated because some needs accounted for only 5 years, not the 20-year period. EPA developed the estimate from a nationwide data base of wastewater treatment facilities that is periodically updated by surveying the States.[16] The States provided revised estimates of capital investment needs from their documented plans, which were supplemented by costs modeled by EPA when the State lacked this information. EPA reviewed all documentation submitted by the States to ensure compliance with its established criteria.[17] In addition, EPA modeled the costs for each State for combined sewer overflows and activities to control stormwater runoff and nonpoint sources of pollution. According to EPA, the estimate is also used to assist the States and Federal Government in program planning and evaluation and to inform the Congress of the magnitude of the needs.[18]

Federal Aviation Administration

In 1999, FAA reported that $35.1 billion in Federal and non-Federal funds was required for airport infrastructure investment projects from 1998 to 2002.[19] The estimate primarily includes projects to bring existing airports up to current design standards, develop passenger terminal buildings, and add capacity to congested airports. The estimate only includes projects that are eligible for funding under FAA's Airport Improvement Program.[20] The estimate was developed by aggregating the projects contained in FAA's National Plan of Integrated Airport Systems data base. The projects originate primarily from airport master plans. FAA officials review projects to determine if they are eligible for funding and justified, and then the approved projects are included in the data base.[21]

Because this estimate is not a spending plan, FAA has reported that it makes no attempt to prioritize the projects or determine if the benefits of specific projects would exceed their cost. This estimate is prepared and submitted to the Congress biennially, as required by statute.[22]

Federal Highway Administration

In May 2000, FHWA issued investment estimates for highways for the years 1998 through 2017.[23] These estimates ranged from $50.8 billion per year for cost-beneficial improvements that would maintain the current physical condition of highways to $83.4 billion per year for all improvements that would improve pavement condition and reduce highway users' travel costs. The estimates included both Federal and nonFederal portions of funding; they do not include the costs to construct new roads. To determine the estimates, FHWA used data from a statistically drawn national sample of 125,000 highway segments as well as information from the States on forecasts such as travel growth. FHWA officials reviewed the data submitted by the States and asked the States to correct serious flaws and improve some data submissions.[24] FHWA used a computer model to simulate the effects of infrastructure improvements on a sample of highway sections and used a benefit-cost analysis to identify economically justified highway improvements.[25] While FHWA's model analyzes these sample highway sections individually, the model is designed to provide estimates of investment requirements valid at the national level and does not provide improvement recommendations for individual highway segments. In June 2000, we found that the model was reasonable despite some limitations concerning the

[16] This activity partially reflects a leading practice.

[17] This activity reflects a leading practice.

[18] EPA also has procedures that partially reflect the following practice: considering alternative ways to address unmet investment needs, including non-capital approaches.

[19] FAA provides airports with grants for capital development. FAA allocates most grants on the basis of (1) a legislated formula that is tied to the number of passengers that an airport enplanes and (2) categories earmarked for specific types of airports and projects.

[20] Generally, the Airport Improvement Program allows for all types of airport development except for automobile parking structures, hangars, air cargo buildings, or the revenue producing areas of large terminals.

[21] This activity reflects a leading practice.

[22] FAA also has procedures that reflect the following leading practices: considering alternative ways to address unmet investment needs, including non-capital approaches and ranking and selecting projects for funding based on established criteria. In addition, FAA has procedures that partially reflect one leading practice: developing a long-term capital plan that defines capital asset decisions.

[23] FHWA provides grants that partially fund the construction and improvement of urban and rural highways and bridges, including major maintenance of interstate highways. States generally provide a 20-percent match and determine how to spend the money within broad Federal guidelines.

[24] This activity reflects a leading practice.

[25] This activity reflects a leading practice.

computations.[26] FHWA's estimate is used by legislative and executive branch offices to obtain general information on the Nation's overall need for investment in highways.[27]

Federal Transit Administration

In May 2000, FTA estimated investment requirements of $10.8 billion to $16.0 billion per year for mass transit systems (include buses, railcars, and ferries) from 1998 to 2017, depending on whether the condition and performance of mass transit systems would be maintained or improved.[28] The estimates include the cost to replace and refurbish existing vehicles and facilities and the cost to construct new mass transit systems. The estimates cover both Federal and nonFederal shares of costs. FTA used data from local urban transit agencies to determine the age and condition of mass transit infrastructure and then estimated the cost of either maintaining or improving that infrastructure. FTA developed the estimates using its Transit Economic Requirements Model. The model compares costs and benefits to determine if replacing an asset was economically justified.[29] The model then aggregated the costs of all the projects that were justified by benefit-cost analysis to determine the total investment estimate for the Nation's mass transit systems. The accuracy of the estimates is limited by missing data and imprecise predictions due to the difficulty in predicting travel growth. FTA uses the estimates to provide general support for its budget and information on changes in mass transit systems.[30]

General Services Administration

In May 2001, GSA's data indicated that $4.58 billion in Federal funds was required over the next 5 years to meet the repair and alteration needs of public buildings.[31] This estimate does not include investment amounts for Federal buildings owned by other Federal agencies, including the Departments of Defense and Energy and the Postal Service. In addition, GSA estimated that $250 million to $300 million was required annually over the next 5 years to construct new border stations and Federal office buildings and $500 million annually was required over 5 to 7 years to construct new courthouses. Regional offices identify investment projects, and cost data are derived from various sources, including contractors, safety inspectors, and building engineers. Projects that have estimated costs of $1.99 million or more are evaluated by headquarters officials and ranked for funding using weighted criteria that include economic return, project risk, and project urgency.[32] In 2000, we reported problems with the quality of data contained in GSA's data base of repair and alteration projects—including incorrect data, missing projects, and cost estimates that were not current.[33] GSA is taking action intended to address the problems we identified and improve the data base, but we have not assessed the agency's progress in this regard. In addition, the sources of cost information vary, so the estimates for individual projects may be inconsistent. GSA's cost data are used as input in determining funding priorities.[34]

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[26] For example, the model cannot completely reflect changes occurring among all highways in the transportation network at the same time, since the model analyzes each highway segment independently. See *Highway Infrastructure: FHWA's Model for Estimating Highway Needs Is Generally Reasonable, Despite Limitations* (GAO/RCED–00–133, June 5, 2000).

[27] In addition, FHWA has procedures that reflect the following leading practice: ranking and selecting projects for funding based on established criteria. FHWA also has procedures that partially reflect the following leading practice: conducting a comprehensive assessment of the resources needed to meet an agency's mission and results-oriented goals and objectives.

[28] FTA provides funding for mass transit primarily through formula and capital investment grants that generally require a State/local match of at least 20 percent.

[29] This activity reflects a leading practice.

[30] In addition, FTA has procedures that reflect the following leading practices: establishing a baseline inventory of assets and establishing procedures to review data developed by others. FTA also has procedures that partially reflect the following leading practices: conducting a comprehensive assessment of the resources needed to meet an agency's mission and results-oriented goals and objects and budgeting for projects in useful segments.

[31] The primary means of financing the operating and capital costs associated with Federal space that is owned or managed by GSA is the Federal Building Fund, a revolving fund supported by rental assessments to Federal agencies and annual appropriations.

[32] This activity reflects a leading practice.

[33] *Federal Buildings: Billions Are Needed for Repairs and Alterations* (GAO/GGD–00–98, Mar. 30, 2000.)

[34] In addition, GSA has procedures that reflect the following leading practices: establishing a baseline inventory of existing assets and establishing procedures to review data developed by others. GSA also has procedures that partially reflect the following practices: considering alternative ways to address unmet investment needs, including non-capital approaches, and budgeting for projects in useful segments.

OVERALL COMMENTS ABOUT THE ESTIMATES

Some perspective is called for in reviewing the investment estimates by the seven agencies. First, the investment estimates encompass major areas of public infrastructure, but they cannot be easily compared or simply "added up" to produce a national estimate of all infrastructure investment needs because they were developed using different methods and were for different time periods. A fundamental reason that the estimates were prepared differently and lack comparability is that they are developed and used for different purposes. Some agencies use the information to determine the financial resources needed to manage and/or repair their own assets, while other agencies develop estimates at the request of the Congress to provide general information to decisionmakers or to help direct Federal funding to States, localities, and other parties.

Second, the seven agencies all had procedures for developing investment estimates that reflect some practices used by leading private sector and government organizations. Those practices include establishing a baseline inventory of assets, using cost-benefit analysis to identify economically justified investments, and ranking and selecting projects for funding based on established criteria. (See app. I for additional information on eight leading practices that pertain to developing and using investment estimates.) Some agencies followed more leading practices than other agencies. For example, the Army Corps had procedures that reflected six of the eight practices, which included establishing an inventory of assets; considering alternative ways to address unmet investment needs, including noncapital approaches; using cost-benefit analysis; and developing a long-term capital plan that defines capital asset decisions. Nonetheless, following the leading practices does not ensure a quality investment estimate and each estimate had limitations associated with the quality of the data used in developing it. Correcting such limitations will improve the quality and reliability of the agencies' investment estimates.

Third, some investment estimates span several decades and investment needs can change significantly over time with changes in the efficiency of delivering infrastructure services or pricing strategies that alter the demand for services. For example, the consolidation of smaller water systems or the introduction of user charges can reduce the need to expand or replace infrastructure. Fourth, many of these estimates are totals for the entire infrastructure network—involving all levels of government and the private sector. The Federal Government's role in financing these amounts should be recognized and, in some cases, this role might be small compared to other levels of government or the private sector. Finally, these estimates mostly focus on the condition of infrastructure rather than the desired outcomes (e.g., less traffic congestion) that can be expected from additional infrastructure investments. We caution against relying on estimates of need that are based primarily on the condition of existing infrastructure if desired outcomes are not clearly articulated and the costs and benefits of alternative approaches (such as using strategies to manage demand rather than building new infrastructure) for achieving those outcomes are not fully considered.

Mr. Chairman, this concludes my statement. I will be happy to answer any questions from you or any member of the subcommittee.

APPENDIX

LEADING PRACTICES IN CAPITAL DECISIONMAKING CONCERNING INVESTMENT ESTIMATES

In 1998, we identified the practices of leading government and private-sector organizations in capital decisionmaking.[35] The following eight practices relate to developing and using investment estimates.

- conduct a comprehensive assessment of the resources needed to meet an agency's
- mission and results-oriented goals and objectives;
- establish a baseline inventory of existing assets, evaluate their condition, determine if they are performing as planned, and identify excess capacity;
- consider alternative ways to address needs, including noncapital alternatives;
- use cost-benefit analysis as a primary method to compare alternatives and select economically justified investments;
- rank and select infrastructure projects for funding based on established criteria;

[35] *Executive Guide: Leading Practices in Capital Decisionmaking* (GAO/AIMD–99–32, Dec. 1998).

• budget infrastructure projects in useful segments;
• develop a long-term capital plan that defines capital asset decisions; and
• establish procedures to review data developed by others and use independent reviews of data and methods to further enhance the quality of estimates.[36]

RESPONSES BY PETER GUERRERO TO ADDITIONAL QUESTIONS FROM SENATOR REID

Question 1. Your work in reviewing the investment estimates of various agencies is a good start to looking at national infrastructure needs in a more comprehensive manner. Now that you have completed your review, what specifically can we do to get agencies to improve their analyses and to develop more uniform processes for estimating infrastructure needs?

Response. Several approaches could be used to develop improved and more comparable infrastructure investment estimates. First, agencies could more closely follow the practices used by leading government and private sector organizations related to infrastructure investment estimates. We listed several best practices in U.S. Infrastructure: Agencies' Approaches to Developing Investment Estimates Vary (GAO–01–835, July 20, 2001). These practices include:

• maintaining an inventory of existing assets and their condition and performance,
• ranking and selecting infrastructure projects for funding based on established criteria, and
• taking steps to improve the quality of data used in making the estimates.

In addition, the Advisory Council on Intergovernmental Relations (ACIR) made recommendations in 1993 concerning infrastructure needs that are still very useful today. In its report High Performance Public Works, the ACIR noted that it is essential that the federal government identify, assess, and undertake infrastructure investments that will pay the greatest possible dividends now and in the future. Doing so requires that agencies evaluate potential infrastructure investments through defining performance goals and measures for their infrastructure programs. This establishes the goals or missions that the infrastructure investment is meant to achieve and how the agency will determine if the infrastructure is meeting those goals. In addition, ACIR noted that using benefit-coast analysis to evaluate infrastructure investments would demonstrate whether broadly defined benefits exceed the life-cycle costs of the potential investment.

Question 2. Is it possible to develop a national estimate of infrastructure needs so we can better track the state of our Nation's physical infrastructure?

Response. Following all of the practices that I mentioned above would allow a greater degree of comparability between estimates made by different government agencies. In addition, to facilitate the compilation of a national estimate individual estimates should: cover similar time periods; separately identify federal spending and nonfederal spending needs; clarify whether estimates are for new infrastructure, operations and maintenance of existing infrastructure, or both; and be derived using similar methods (e.g., by discounting future costs).

Question 3. Since this subcommittee will soon begin the long process of reauthorizing our surface transportation laws, I am particularly interested in your critique of the Department of Transportation's estimate of road and transit infrastructure needs. Can their analysis really help us estimate the cost of addressing the increasing congestion on our Nation's roads, which itself has been estimated to cost $78 billion a year in lost time and wasted fuel? Is there anything we can do to improve the usefulness of these estimates?

Response. One of the strengths of the Department of Transportation's (DOT) estimate of highway investment needs is that it includes several scenarios. These scenarios present different estimates, depending on the outcome that is desired for the Nation's highways. One scenario focussed on congestion by estimating the investment required to maintain average travel times at their current (1997) level over 20 years. DOT's analysis showed that maintaining travel times would require about $68 billion (in 1997 dollars) in capital investment per year over 20 years. Improving travel times would require a greater investment. In contrast, all levels of government invested $42.6 billion in highways in 1997. Assuming that spending on highway investments continues at the level that DOT projects, the United States will continue to lose ground on congestion over the next 20 years.

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[36] This practice was identified as a result of information collected during our review of the seven agencies' investment estimates.

Congestion is caused by a combination of factors in addition to inadequate highway capacity, including economic growth and prosperity in the United States, changing geographic characteristics of metropolitan areas, and demographic changes. These factors, combined with the likelihood that the United States will not invest in highways at the level required to maintain travel times, suggests that responses to congestion might usefully include activities in addition to capital investment in highways. These activities include, for example, operating the existing highway capacity more efficiently through use of technology, making better use of capacity by providing incentives to drivers to carpool or drive at off-peak hours, considering the interactions between land use and highway traffic, and encouraging use of alternative modes of transportation.

Question 4. Do any of these infrastructure needs assessments take into account the increased likelihood of catastrophic storms that will last for the next several decades, according to the U.S. Hurricane Research Division of NOAA (National Oceanographic and Atmospheric Administration)?

Response. We found no indication that the estimates took into account the increased likelihood of catastrophic storms. However, we did not review the specific assumptions for all the individual projects that make up the investment estimates.

Question 5. What about the three to ten degree increase in average global temperature and the corresponding sea level rise that the National Academy of Sciences thinks is possible over the next century?

Response. The U.S. Army Corps of Engineers' procedures for conducting project feasibility studies call for consideration of alternative scenarios of future sea-level rise. We found no indication that the other estimates took this into account.

Question 6. What impacts might the effects of global warming have on our Nation's physical infrastructure?

Response. Global warming is expected to raise the sea level and change precipitation and other local climate conditions. These changes could affect, to varying degrees, major components of our Nation's physical infrastructure. For example, existing coastal infrastructure may need to be protected from future sea-level rise by the building of bulkheads and sea walls. The operation and maintenance of transportation systems would also be affected, but exactly how is hard to predict. For example, higher average temperatures could result in lower highway maintenance costs, especially with fewer freeze-thaw cycles and less snow. However, increased pavement buckling could also result from longer periods of intense heat. In addition, water resources would be affected by changing climate conditions. The U.S. Army Corps of Engineers' Institute for Water Resources conducted studies on the effect that climate changes may have on various U.S. water basins including the Great Lakes, Savannah River system, and the Boston Metropolitan water supply. For each study, researchers simulated the operation of the water basin under different climate change scenarios to determine how the basin would respond. The researchers concluded that, except in very extreme cases, the climate changes would have negligible impact on the basins' operations.

Question 7. What, if any, changes need to be made in our national building codes or planning and zoning concepts to deal with this warming?

Response. Anecdotally, we have heard that some localities are addressing the issue, however, we have not examined the issue or the adequacy of these individual efforts. For example, the U.S. Coastal Zone Management Act requires State coastal programs to address rising sea level, and a few States have modified coastal land use policies to address rising sea level. Regulations along San Francisco Bay require projects along the shore or on newly reclaimed land to be either protected by a dike or elevated enough to accommodate accelerated sea-level rise.

STATEMENT OF AMERICAN SOCIETY OF CIVIL ENGINEERS

Mr. Chairman and members of the subcommittee. The American Society of Civil Engineers (ASCE) is pleased to provide this statement for the subcommittee on the need for a continued strong Federal role in the construction and repair of the Nation's critical infrastructure systems.

Last March, ASCE released its 2001 Report Card for America's Infrastructure in which the Nation's critically important foundation received a cumulative grade of "D+" in 12 infrastructure areas.

Shortfalls in Federal and State funding and changing population patterns have placed a tremendous burden on our aging power plants, water systems, airports, bridges, highways and schools.

The reasons for such a dismal grade are numerous: an explosive population growth and school enrollment that outpace the rate and impact of current investment and maintenance efforts; local political opposition and red tape that stymie the development of effective solutions; and the growing obsolescence of an aging system—most recently evident in the breakdown of California's electrical generation system and portions of the Nation's decaying water infrastructure.

In short, America has been seriously underinvesting in its infrastructure for decades and our report card reflects that unfortunate reality.

To remedy our infrastructure problem, ASCE estimates that the Nation needs to make an investment of $1.3 trillion over the next 5 years.

Only the Federal Government has the resources to help underwrite the massive need for a nationwide infrastructure repair effort.

Our 2001 report card follows one released in 1998, at which time the 10 infrastructure categories rated were given an average grade of "D." While there have since been some efforts to address infrastructure shortfalls, ASCE's analysis shows that conditions remain basically the same. Five categories have gone up slightly but are still average or below.

Grades in three categories—transit, aviation and wastewater—have gone down. The evaluation of two new infrastructure areas, navigable waterways and energy, have kept the grade point average low. Grades ranged from a high of "C+" for solid waste to a low of "D−" for schools. Despite being at the extremes, solid waste and schools received better marks than the "C−" and the "F" they received in 1998. Most States have effectively sought alternatives to dumping solid waste into landfills by encouraging recycling—up 50 percent since 1990—and converting waste to energy. Approximately 17 percent of the Nation's solid waste is now converted to energy.

While local governments have increased spending on school construction and maintenance, problems continue to linger as enrollment outpaces construction in many communities. Consequently, the cost to remedy the situation has risen from $112 billion in 1998 to $127 billion. With three-quarters of all school buildings failing to provide an effective environment for learning, due to either outdated facilities or overcrowding, the situation could worsen before things improve significantly.

Transit received a grade of "C−," down from a "C" 3 years ago, and airports received a "D," down from a "C−" in 1998. While funds have been made available through TEA–21 and AIR–21, appropriated to mass transit and aviation respectively, both systems are struggling to meet usage demands nationwide. Transit ridership has increased 15 percent since 1995, adding a strain despite unprecedented growth in transit systems and increased funding.

Furthermore, existing public transportation systems, such as San Francisco's BART system and Washington's Metro system, are challenged by new commuter patterns that did not exist and were not anticipated when the systems were first designed and constructed.

Airports are already faced with gridlock on a seemingly daily basis. In the past 10 years, air traffic has increased 37 percent, while capacity has increased only slightly. The aviation infrastructure, airports, air traffic control system and other components are not keeping up. Furthermore, local politics impede the discussion and implementation of solutions to meet the growing demand.

Wastewater declined from a "D+" in 1998 to a "D," while drinking water remained a "D." Wastewater and drinking water systems are both quintessential examples of aged systems that need to be updated. For example, some sewer systems are a hundred years old. Aged drinking water systems are structurally obsolete.

The shortfalls of $11 billion for drinking water and $12 billion in wastewater only account for improvements to the current system and do not even take into consideration the demands of a growing population.

Along with drinking water, dams was the only other category to have received the same grade, "D," as it did in 1998. In the past 2 years alone there have been 61 reported dam failures and the number of "high-hazard potential dams"—those whose failure would cause loss of life—increased from 9,281 to 9,921 in 1998. Currently, there are more than 2,100 unsafe dams in the United States, which have deficiencies that leave them highly susceptible to failure.

Energy generation and transmission, a new addition to the 2001 Report Card, scored a "D+" for its growing inability to meet the population's demand for power. More than 10,000 megawatts (MW) of capacity need to be added each year until 2008 to keep pace with the 1.8 percent annual growth in demand. Since 1990, actual capacity has increased only about 7,000 MW per year, an annual shortfall of 30 percent nationwide.

Navigable waterways, the other newly evaluated category, posted a grade of "D+." Navigable waterways encompass the Nation's ports, harbor channels, and inland, in-

tracoastal and coastal waterways. Together, this network of waterways moves 2.3 billion tons of commercial goods. In the past 30 years, capital investment for public water resources has decreased 70 percent. The U.S. Army Corps of Engineers has a $38 billion backlog of authorized projects, which would take 25 years to complete at current funding levels.

Three categories showed modest improvements. Roads went up from a "D−" to a "D+," and bridges rose from a "C−" to a "C." Both categories have benefited from an increase in Federal and local funding currently allocated to ease road congestion and decaying bridges.

But, with 29 percent of bridges still ranked as structurally deficient or obsolete and nearly a third of major roads considered to be in poor or mediocre condition, we believe that Congress cannot afford to allow promised funding for transportation to lapse.

Efforts to reduce hazardous waste have improved that category's grade from a "D−" to a "D+," primarily because effective regulation and enforcement of current policies have largely halted the contamination of new sites. Yet this grade remains low because the number of sites could grow, creating a backlog in the system.

As dismal as these grades seem, many of the downward trends can be reversed with increased funding and a renewed partnership between citizens, local, State and Federal Governments. We have taken for granted that our lights will turn on, our roads and bridges won't crumble beneath us and that we'll have clean and safe water when we're thirsty. Without adequate resources, we cannot implement appropriate solutions.

With a projected Federal budget surplus shrinking by the month, Congress must not delay the effort to earmark the funds needed to restore our ailing infrastructure. Without these resources, we gamble America's prosperity on an infrastructure whose pipes, schools, and airports are literally at the bursting point.

Mr. Chairman, that completes our statement.

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