INNER LOOP EAST RECONSTRUCTION & REALIGNMENT PROJECT

HIGHWAY

CITY OF ROCHESTER, MONROE COUNTY, NEW YORK STATE
28th CONGRESSIONAL DISTRICT

ROCHESTER URBAN AREA (UA)

TIGER REQUEST: $22,560,000
TOTAL PROJECT COST: $30,600,000
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1. PROJECT DESCRIPTION

Project Name

INNER LOOP EAST RECONSTRUCTION & REALIGNMENT PROJECT

Description

Reconstruct an aging, inefficient, and underutilized segment of the Inner Loop Expressway and its frontage roads, Pitkin and Union streets, for approximately 2/3-mile between Monroe Avenue and Charlotte Street and realign it as a multi-lane surface boulevard. This project includes the removal of three federal-aid bridges, two of which are structurally-deficient and in need of major rehabilitation. The project will remove a significant barrier to redevelopment in one of Rochester’s most important downtown districts (the East End) and will reconnect thriving east side neighborhoods with the downtown area. Completion of this project will result in acres of developable land for mixed-use redevelopment thereby creating jobs and leveraging private investment.

General need for project

This inefficient grade-separated expressway serves as a barrier between Downtown Rochester and adjacent neighborhoods, stifling redevelopment and discouraging greater use of alternate modes of transportation. The expressway is out of context with the surrounding community, creates a number of unsafe situations that need to be addressed, and creates excess delay at numerous intersections. Further, two large bridges in the project area are in need of costly repairs to address structural deficiencies and are proposed for removal through this project.

Project Sponsor

City of Rochester, New York

Project Contact Information

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Cost and amount of TIGER Grant Request

Total Project Cost: $30,600,000
TIGER Grant Request: $22,560,000

Synopsis of Long-Term Outcome and Job Creation Benefits

This project addresses all five of the long-term outcome areas (State of Good Repair, Economic Competitiveness, Livability, Sustainability, and Safety) and creates substantial opportunities for employment both in the near-term and long-term. The project is located in the City of Rochester, an Economically Distressed Area (see map in appendix). Maps and aerial photography showing the boundaries and location of the project area within the existing street network is attached in the appendix.
This project is consistent with regional State of Good Repair efforts. Two of the three bridges proposed for removal are structurally-deficient and in need of costly repairs or total replacement in the near future. In addition, the pavement on the Inner Loop is wearing quickly indicating issues with the sub-base and the need for major rehabilitation or full depth reconstruction in the coming years. The cost to replace this section of the Inner Loop in its current state is estimated to be 1.32 times higher than to replace it with a more efficient at-grade boulevard. With respect to travel performance, the project can achieve the desired objective while adding only 2.2 seconds of delay per vehicle during the evening peak travel period by the year 2035. The Level of Service at the remaining three (3) reconfigured traffic signal control intersections will operate at LOS C with no traffic movements below LOS D.

The initial transportation investment will create an estimated 337 jobs. Based on a 2001 study, raising this portion of the Inner Loop would open up 9.2 acres of land for new development. This amount of land could support 460,000 to 920,000 sq. ft. of new commercial/residential developments, resulting in $64.4 to $128.8 million of additional investment in the community. This private investment in redeveloping this land would create an additional 708 to 1,416 construction jobs and the newly-redeveloped land would generate between $3.43 to $6.86 million annually in new property taxes for Monroe County, the City of Rochester, and the Rochester City School District. Assuming an average of 250 square feet per employee, the private redevelopment would create between 1,840 to 3,680 long-term jobs in the resulting retail, office, and other commercial uses.

There will be a slight reduction in energy use and a significant reduction in all vehicle emissions which will improve air quality. Similarly, a reduction in both energy use and vehicle emissions can be expected to continue in the future as a result of this project. It should also be noted that the reduction in lane miles of highway and elimination of three bridges will reduce consumption of natural resources in manufacturing materials for maintaining or replacing such infrastructure.

The project will reduce the number, rate or consequences of crashes. In summary, a total of 87 crashes occurred over a three year period along the Inner Loop and adjacent service roads (South Union Street and Pitkin Street) including 17 (20%) crashes that involved injuries. The frequency of crashes at the six traffic signal controlled intersections that serve the existing Inner Loop currently exceed the Monroe County average accident rates for similar type of intersections, with four exceeding the New York State average rates. The proposed project will eliminate three of these intersections, along with crashes associated with the higher travel speed and sub-standard highway features of the Inner Loop. The result is an expected crash reduction of 62%.

Project Parties

The City of Rochester, New York (population 219,773) is the Lead Agency for the proposed project. The City has a long history of delivering high-quality, large-scale public projects utilizing federal funding. A strong example of this is the Port of Rochester Infrastructure Improvements project that was completed in 2004. This $40 million project constructed new streets, sidewalks, lighting, drainage, parking, multi-use trails, and public space on a previously-undefined parking area surrounding the historic Port Terminal Building, which was also rehabilitated for public use. Other recent examples of federally-funded City transportation projects include the Broad Street Tunnel Reconstruction project, a $23 million project that will fill in a deteriorating subsurface tunnel and fully reconstruct a major surface arterial above and the West Ridge Road Reconstruction project, an $25 million project involving the complete reconstruction of a six-lane Principal Arterial street that carries

Other involved agencies include Monroe County, whose Department of Transportation provides traffic engineering services to the City of Rochester, and New York State, which owns the current Inner Loop Expressway facility and from whom the City would receive ownership and jurisdiction of the roadway. Both Monroe County and New York State have been intimately involved in this project and concur with this proposal for TIGER funding.
2. Project Readiness Criteria

Project Schedule

A detailed project schedule broken down by quarterly increments is shown below which demonstrates that the project can begin construction quickly upon receipt of a TIGER Grant. The TIGER Grant funds will be spent steadily and expeditiously once construction starts. Preliminary and Final design are anticipated to be completed by July 2011 with construction to occur between September 2011 through October 2013.

Preliminary Engineering: September 2009 to October 2010
  • Develop Draft Design Report/Environmental Assessment: September 2009 to June 2010
  • Develop Final Design Report/Environmental Assessment: June 2010 to October 2010

Final Design: October 2010 to July 2011
  • Complete 40% Plans: October 2010 to January 2011
  • Complete ADP (95% Plans): January 2011 to May 2011
  • Complete Bid Plans (PSE): May 2010 to July 2011

Bid & Award: July 2011 to September 2011
Construction Start: September 2011
Estimated Date of Completion: October 2013


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<th>Summer 10</th>
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Numbers in shaded boxes represent estimated direct, on-project jobs created or sustained by this investment during by that phase in each quarter based on recent guidance from the White House Council of Economic Advisers of 11 jobs per million dollars invested. Total direct job creation is estimated to be 337 jobs.

Environmental Approvals

The project is a signature component of the City of Rochester’s Comprehensive Plan, *Rochester 2010: The Renaissance Plan*, adopted in 1999. The Comprehensive Plan followed the New York State Environmental Quality Review process and received a Negative Declaration (Determination of Non-Significance).

All the necessary environmental approvals needed in order for the project to proceed to construction as specified in the project schedule are listed below.

**City of Rochester – Dept. of Neighborhood & Business Development** – these documents and processes will be completed during the Preliminary and Final Design state of the project.
  • Site Plan Review
  • SEQRA and NEPA Compliance - Design report will be progressed as an Environmental Assessment which will lead to a Record of Decision.

**New York State Dept of Environmental Conservation:**
  • SPDES General Permit (stormwater management)
New York State Office of Parks, Recreation and Historic Preservation:

- Cultural Resources coordination and documentation

Legislative Approvals

Legislative approvals required for this project will include City of Rochester City Council approvals for:

- Award of Construction and Engineering Contracts
- Jurisdictional and maintenance changes with the New York State Department of Transportation
- Roadway width adjustments for the new arterial/boulevard
- Parking regulation adjustments

A similar legislative approval for the jurisdictional and maintenance changes from the New York State Department of Transportation will also be necessary. Broad support among the New York State Department of Transportation, Monroe County Department of Transportation, and City of Rochester has been demonstrated through the various planning efforts over the years and their participation in the ongoing preliminary engineering activities.

State and Local Planning

The project is on the Genesee Transportation Council’s regional Transportation Improvement Program (TIP) and the New York Statewide Transportation Improvement Program (STIP). The TIP # is H01-05-MN1 and the PIN is 4940T7. The project detail sheet from the current TIP is included in the Appendix. A letter from the Metropolitan Planning Organization certifying that, if notified, TIGER funds will be added to this project in the TIP is included in the appendix.

Technical Feasibility

Preliminary Engineering work is underway. The City of Rochester, supported by a Technical Advisory Group consisting of New York State Department of Transportation, Monroe County Department of Transportation, and the Genesee Transportation Council (MPO) is currently finalizing a scoping/traffic study to demonstrate that removal of this section of grade-separated expressway would not result in negative impacts to regional traffic flow. This study, to be completed by Fall 2009, will constitute significant portions of the preliminary engineering documents, including existing performance (traffic and infrastructure) conditions and future needs.

This project was awarded $1.9M through SAFETEA-LU as a High Priority Project to complete the Preliminary Engineering through PSE. This is anticipated in mid-Summer 2011 with Construction commencing in early Fall 2011. No ROW acquisition is needed for this project as the New York State Department of Transportation and the City of Rochester own all of the right-of-way along the entire project length. Right of way transfers and/or maintenance jurisdictions will be reestablished.

Financial Feasibility

Funding is already in place for the majority of work through PSE. Receipt of TIGER funding would complete the overall project budget and ensure that this regionally-significant project is completed in a timely fashion. The project budget includes a 25% construction contingency reserve to accommodate unanticipated complications which may arise over the course of such a unique and complex project. The City of Rochester, New York has a demonstrated history of successfully managing large projects with budgets equal to or greater than the requested TIGER funding. Examples include the Port of Rochester Infrastructure Improvements, Broad Street Tunnel Reconstruction, and West Ridge Road Reconstruction projects, all of which had budgets exceeding $20 million.
### 3. Project Budget

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<th>Federal Funds (source)</th>
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<td><strong>Total</strong></td>
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<td>$1,920,000 (6%)</td>
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4. **Long-Term Outcomes**

**State of Good Repair**

The Inner Loop Expressway rings the City of Rochester’s Central Business District like a noose, strangling the downtown area from adjacent vibrant densely-populated neighborhoods. The proposed project will replace this aging, inefficient grade-separated expressway and its adjacent frontage roads with a new surface boulevard capable of handling the traffic volumes while contributing to economic development and enhanced community cohesion. This section of the Inner Loop serves relatively minor traffic volumes and is experiencing above average accident occurrences along the expressway section and at the at-grade intersections. The project will eliminate the need to maintain, rehabilitate or replace:

- Three (3) traffic signals;
- Three (3) multi-span bridges;
- 16,000 square feet of retaining walls;
- Minimum of four (4) lane miles of the Inner Loop expressway system;
- Three (3) miles of highway shoulders, along with guide rail and other highway features.

Three bridges over the sunken expressway, two of which are structurally-deficient and in need of major rehabilitation if not total replacement, will be removed. Replacing these two (2) bridges alone would be more than one-third the cost of the $22.56 million proposed TIGER share to raise this section of the Inner Loop. Details for the three bridges are as follows:

- **East Avenue (State Route 96) over Inner Loop** - built in 1965; NYS Condition Rating of 4.319; NBI Superstructure rating of 4, NBI Substructure rating of 5; Red, Yellow, and Safety flags issued; “R” posted
- **Broad Street over Inner Loop** - built in 1965; NYS Condition Rating of 4.042; NBI Superstructure and Substructure ratings of 4; Red, Yellow, and Safety flags issued
- **Monroe Avenue (State Route 31) over Inner Loop** – built in 1957 (rehabilitated in 1998); NYS Condition Rating of 6.65; NBI Superstructure rating of 9, NBI Substructure rating of 7

The life-cycle cost savings of replacing this section of the Inner Loop more than pays for the requested TIGER investment. Based on regional averages for bridges, the estimated cost to replace these three bridges is $13,300,000. The annual maintenance cost for these bridges is estimated at approximately $156,000. Therefore, the life-cycle cost savings over 75 years by removing these unnecessary bridges is roughly $25,000,000.

![Figure 1 - View of Broad Street Bridge over Inner Loop](image-url)
The Inner Loop and service roads form 9-12 lanes of highway width creating a major barrier between the City’s CBD and adjacent neighborhoods. Pavement scores on this section of the Inner Loop Expressway range between 6 and 7 (fair to good), despite being resurfaced in 2006. This demonstrates a need for full-depth reconstruction in the near future. The estimated cost to reconstruct the pavement on this section of the Inner Loop is roughly $4,650,000. The estimated cost of annual pavement maintenance and operations for this section of expressway is approximately $30,000. Therefore, the life-cycle pavement cost savings over 75 years by removing this expressway is roughly $7,000,000. This figure does not take into account the cost savings inherent in eliminating the expense of maintaining large retaining walls, deteriorated guiderails and medians, drainage, and overhead signage.

Pavement scores on the expressway frontage roads range between 5 and 7 (poor to good). The frontage roads (Pitkin, Union, or Howell streets) have not been reconstructed within the past 50 years and all are due for full reconstruction in the coming years. It is expected that the new boulevard street which results from this project will be similar in size to the combined width of the frontage roads, though slightly narrower. As such, the life cycle cost savings from replacing Pitkin, Union, and Howell streets is marginal, though positive. However, six traffic signals along the corridor will be consolidated into three, resulting in further cost savings to the public.

The cost to replace this section of the Inner Loop in its current state is estimated to be 1.32 times higher then to replace it with a more efficient at-grade boulevard. Hence, this project will significantly reduce the life-cycle costs to FHWA, NYSDOT, Monroe County, and the City of Rochester, which all maintain or fund repairs and improvements in this section, including street cleaning and snow plowing. The poor condition of the infrastructure plus the community barrier this expressway has become produces lost opportunities for economic growth and stability in the community. Reducing the life-cycle costs to all of these agencies is an important aim of the project to maintain transportation facilities in a State of Good Repair.

Currently, this section of the Inner Loop Expressway carries between 8,500 and 11,000 cars per day on six travel lanes. The adjacent frontage roads, Pitkin and Union streets, together carry an additional 6,000 cars per day on another four to six lanes of traffic. The combined highway facility cuts a roughly 200-foot wide swath of underutilized pavement through the heart of the city that is ill-suited for the otherwise dense walkable environment that surrounds it.

The expressway has a number of non-standard features, notably blind slip ramps and inadequate merge/weave sections, which contribute to unsafe conditions and a generally unpleasant experience. The presence of one-way frontage roads flanking the expressway makes it necessary to have two traffic signals at each crossing arterial (six signals in total). Two of these arterials, East Avenue and Monroe Avenue, carry more traffic than the expressway itself. Thus, the underutilized expressway causes excess delay on more heavily-traveled surface arterials. Removal of the expressway and frontage roads and their
replacement with an at-grade boulevard will improve traffic operations on these key Center City arterials while adding only minor delay for former users of this section of expressway.

As alluded to above, the Inner Loop is disruptive to the bicycle and pedestrian environment in this otherwise walkable urban center. The sunken expressway is a physical and psychological barrier between thriving east side neighborhoods and the downtown area. The Loop’s presence discourages walking and biking between adjacent urban neighborhoods. The aging bridge crossings at East Avenue and Broad Street are not fully ADA-compliant, hindering accessibility for the disabled and creating unsafe conditions for all.

With respect to travel performance, the project can achieve the desired objective while adding only 2.2 seconds of delay per vehicle during the evening peak travel period by the year 2035. The Level of Service at the remaining three (3) reconfigured traffic signal control intersections will operate at LOS C with no traffic movements below LOS D. Energy consumption, as well as vehicle emissions, will be reduced (see Sustainability Section). These changes will also reduce the number and severity of traffic accidents. Thus, overall travel safety will be improved (see Safety Section).

The relatively low traffic volumes on the expressway can be easily, and more efficiently, handled on a multi-lane surface boulevard. The removal of the grade-separated highway will facilitate increased bicycle/pedestrian mode share and will enhance accessibility and mobility options for the disabled. The number of traffic signals along the corridor will be halved from six to three, reducing excess delay for motorists and patrons of the three heavily-used bus routes that traverse this section of the Loop. Access management via medians and/or shared driveways will ensure a high-quality level of service on the new boulevard.

This project is consistent with regional State of Good Repair efforts. Two of the three bridges proposed for removal are structurally-deficient and in need of costly repairs or total replacement in the near future. In addition, the pavement on the Inner Loop is wearing quickly indicating issues with the sub-base and the need for major rehabilitation or full depth reconstruction in the coming years. Rather than expend funds on maintenance and reconstruction of a facility deemed undesired and superfluous, TIGER funds are requested to assist with the removal of the facility and its reconstruction as a new efficient surface boulevard. There are currently an estimated 14 acres of pavement in the right-of-way which would be at least cut in half. The resulting land would then be made available for mixed-use redevelopment or reserved for public open space/parkland.

The Inner Loop Expressway is an aging, unattractive, and underutilized facility. In the project area, this highway and its adjacent frontage roads cut a 160 to 225-foot wide steel, concrete, and asphalt barrier between Rochester’s revitalizing downtown area and its vibrant east side neighborhoods. There are only three opportunities to cross this barrier within the two-thirds mile project area: East Avenue, Broad Street, and Monroe Avenue. All three of these arterials are unfriendly to bicyclists and pedestrians due to the heavy turn movements and long cycle lengths exacerbated by the need for two traffic signals on each arterial. Vehicular excess delay is also created by the presence of this limited use highway.

Currently, lands fronting the Inner Loop serve as surface parking lots or host buildings which typically turn their backs to the highway. The Loop has effectively created a “dead zone” in what is an otherwise vibrant densely-populated urban center. The current situation stifles redevelopment in the area and is widely-viewed as one of the most important public projects for Center City economic development. Removal of the sunken expressway and frontage roads and their replacement with a new surface boulevard will improve accessibility and mobility in the area, enhance community character, and create acres of developable land that will leverage significant private investment and create significant employment opportunities far beyond the initial transportation investment.
The project will be fully-funded assuming ARRA funds are granted as requested. The City of Rochester employs a successful preventive maintenance asset management program on its arterial and collector streets. These streets follow a 60-year lifecycle which includes interim paving treatments (i.e., milling & resurfacing, overlays, spot curb replacement, and periodic crack sealing) to ensure a cost-effective lifecycle.

**Economic Competitiveness**

The proposed project is located in the City of Rochester, New York which is a federally-designated Economically Distressed Area (see Appendix).

This project will have a net positive impact on the long-term efficiency, reliability and cost-competitiveness of the United States with respect to the movement of workers or goods. Removal of the inefficient Inner Loop Expressway will improve accessibility and mobility options, and overall system performance, in the heart of a major Central Business District that is home to 50,000 employees and hosts millions of visitors annually. The expressway is rarely used for commuting purposes and its removal will not result in negative impacts to travel times. In fact, travel times on the connecting arterials will likely improve due to the elimination of three signalized intersections.

The initial transportation investment will create an estimated 337 jobs. However, unlike average transportation investments, this project will leverage significant private redevelopment that will create many more long term jobs in an economically-distressed inner city. The project will make improvements to the roadway infrastructure and circulation on the east side of Rochester’s Central Business District, thus allowing for significant expansion, hiring, and growth of private sector businesses. Based on a 2001 study, raising this portion of the Inner Loop would open up 9.2 acres of land for new development. This amount of land could support 460,000 to 920,000 sq. ft. of new commercial/residential developments, resulting in $64.4 to $128.8 million of additional investment in the community. This private investment in redeveloping this land would create an additional 708 to 1,416 construction jobs and the newly-redeveloped land would generate between $3.43 to $6.86 million annually in new property taxes for Monroe County, the City of Rochester, and the Rochester City School District. Sale of this vacated land to private development would result in over $2.0 million benefit to the City based on current land values. Assuming an average of 250 square feet per employee, the private redevelopment would create between 1,840 to 3,680 long-term jobs in the resulting retail, office, and other commercial uses.

Over the long term, this transportation investment will generate considerable local employment growth through the redevelopment of acres of land freed up by removing this section of the Inner Loop. Mixed-use infill development containing retail, office, and residential space will lead to long-term economic gain in an inner city with above-average concentrations of minority and low-income populations.

Economic competitiveness is demonstrated by the project's ability to increase the efficiency and effectiveness of the transportation system through integration or better use of all existing transportation infrastructure. The elimination of the expressway section allows for the reconnection of a grid roadway system that will improve overall connectivity and circulation in the area. This increased mobility includes not only vehicular traffic but also improved pedestrian and bicycle access and transit-supportive features. The project includes extending pedestrian links along all newly reconnected cross streets in addition to the new pedestrian systems along the new arterial/boulevard. Bicycle lanes, pedestrian amenities, and transit-supportive appurtenances will be provided where possible to complete the new multi-modal facility.

**Livability**

This project is focused on removing barriers and improving connections between residential and commercial areas. By eliminating the sunken expressway and “moat effect,” enhanced bicycle and
pedestrian activity between densely-populated vibrant east side neighborhoods and Rochester’s increasingly active downtown area will be facilitated. Downtown Rochester is home to roughly 50,000 workers, 4,000 residents, and millions of annual visitors. Adjacent residential areas include some of Rochester’s most thriving neighborhoods such as Park Avenue, Neighborhood of the Arts, Monroe Avenue, and Wadsworth Square. More than 15,000 people live within a half-mile of the project area (Census 2000).

By removing the grade-separated expressway and increasing the number of connection points between neighborhoods and the downtown area, accessibility and mobility options are greatly increased. The project will incorporate bicycle-friendly features, such as bicycle lanes, bicycle parking, and signage. Pedestrian amenities will be added including wide sidewalks, benches, trees and plantings, and lighting. Transit supportive elements, including bus shelters, will be added as well.

This project is a case study in transportation and land use connectivity. Prior to the completion of the Inner Loop in 1965, the downtown area organically blended into the adjacent residential neighborhoods allowing for a great sense of community cohesion. As the Inner Loop was constructed, hundreds of properties were bulldozed and any ties between the neighborhoods and the downtown were eliminated. This led to a decades-long trend of disinvestment that is only now beginning to turn around. Removal of this underutilized section of the Inner Loop will help correct transportation mistakes of the past which had a very noticeable negative impact on land use in a major urban center.

This project is the result of the 2001 Inner Loop Improvement Study, the purpose of which was to develop alternatives for reconstructing the transportation infrastructure on the east side of the Rochester Central Business District with a facility of appropriate scale, size and configuration that better meets the community’s needs for access, neighborhood cohesion and land use. The study involved considerable public input at multiple public meetings. The study itself was an outgrowth of the Vision 2000 Plan completed in 1991, bolstered by the Renaissance 2010 Comprehensive Plan completed in 1999, and supported by a downtown design charrette organized by the American Institute of Architects in 2000. Each of these efforts incorporated exhaustive public participation.

**Sustainability**

The project has the ability to improve energy efficiency, reduce dependence on foreign oil, reduce greenhouse gas emissions, and benefit the environment. The project will eliminate a long standing barrier, a 4-6 lane grade-separated expressway, which will enable greater community interconnectedness. The project will allow for the restoration of the original street grid network that is more energy-efficient and walkable. The removal of this barrier and its replacement with an at-grade boulevard will notably encourage and enable alternative transportation modes such as pedestrian, bicycle and transit.

Connectivity from nearby residential communities to the downtown commercial and business district will be notably enhanced. Adjacent cultural destinations, educational institutions, retailers, restaurants, services, etc. will be more readily accessible from the residential neighborhoods by foot or bicycle. These everyday trips taken by all modes are currently achieved via circuitous routes around the grade separated Inner Loop expressway; hence overall traffic may see a redistribution and reduction. While future use of alternative transportation modes is difficult to quantify, expected reductions in CO2 emissions and fuel consumption is still expected based on the projected traffic volumes assessed for this project. According to the SYNCHRO traffic simulation model, which was used to evaluate before and after traffic conditions along the new boulevard and its intersections during the evening peak travel hour, the forecasted traffic by the year 2035 (5 runs averaged) indicates the following:

Energy Consumption – Reduction is expected from 1,843 gallons used to 1,837.7 gallons used, or a decrease of 0.3%.
Vehicle Emission Reductions are also expected as follows:

- VOC Emissions – from 2,161 grams to 1,994 grams or 8% decrease
- CO2 Emissions – from 77,428 grams to 71,169 grams or 8% decrease
- NOx Emissions – from 7,405 grams to 6,915 grams or 6.5% decrease

Per the forecasts noted above (evening peak hour traffic), there will be a slight reduction in energy use and a significant reduction in all vehicle emissions which will improve air quality. Similarly, a reduction in both energy use and vehicle emissions can be expected to continue in the future as a result of this project.

It should also be noted that the reduction in lane miles of highway and elimination of three bridges will reduce consumption of natural resources in manufacturing materials for maintaining or replacing such infrastructure. No environmental impacts have been identified as the proposed project does not require additional Right of Way, will improve air quality, and improve community cohesion. The project’s preferred alternative has avoided any adverse environmental impacts while optimizing the potential for redevelopment efforts.

**Safety**

The project will reduce the number, rate or consequences of crashes. This reduction is quantified in the full safety assessment provided in the appendix. In summary, a total of 87 crashes occurred over a three year period along the Inner Loop and adjacent service roads (South Union Street and Pitkin Street) including 17 (20%) crashes that involved injuries. The frequency of crashes at the six traffic signal controlled intersections that serve the existing Inner Loop currently exceed the Monroe County average accident rates for similar type of intersections, with four exceeding the New York State average rates. The proposed project will eliminate three of these intersections, along with crashes associated with the higher travel speed and sub-standard highway features of the Inner Loop. The result is an expected crash reduction of 62% (see safety appendix).

The project will also reduce the number, rate or consequences of injuries and fatalities among drivers and/or non-drivers. A total of 17 crashes involving injuries occurred in a three year period, 13 (76%) of these crashed occurred along the existing high speed, substandard expressway section of the Inner Loop. It is therefore anticipated that up to 76% of the crashes involving injuries will be eliminated with this project.

Despite being grade-separated for most of its length, a roughly 700-foot section of the Inner Loop between Broad Street and Monroe Avenue is at-grade to accommodate access/egress movements. Given its low traffic volumes and at-grade character in this location, many pedestrians unlawfully cross the expressway at this location causing a significant safety hazard. Removal of this high-speed limited-access expressway and its replacement with a surface boulevard, with convenient pedestrian crossings, will greatly improve pedestrian safety in this location.

This project does not involve any highway/rail grade crossings, pipelines or prevention of unintended release of hazardous materials.
5. **Benefit/Cost Analysis**

The following quantifies project benefits, including the use of Benefit/Cost Analysis (“BCA”). Full consideration has been given to quantifying benefits for the Long-Term Outcomes discussed above including: State of Good Repair, Economic Competitiveness, Sustainability and Safety. A detailed estimate for each of these items is included in the appendix; the following provides a summary.

**State of Good Repair Benefit – $2,000,000**
Value of land created by eliminating the expressway and made available for private development.

**Economic Competitiveness Benefit – $67,900,000 min**
The acres of vacated land would generate private investment ranging from $64.4M to $128.8M and create 708-1,416 construction jobs. County, City and School taxes potentially generated by economic redevelopment could reach another $3.5 - $6.87M. Private investment leveraged by this project would create an estimated 1,840 to 3,680 long-term jobs.

**Sustainability – $275,000**
Minor additional travel delay costs; energy savings and emission reductions (i.e., 6,259g CO2, 167g VOC, 490g NOX, 5.3 gallons of fuel), though locally important, are globally negligible and thus not included.

**Safety Benefit – $947,000**
By removing this section of expressway, it is anticipated that 76% of all crashes involving injuries in the project area will be eliminated.

**Project Cost – $30,600,000**
The cost to reconstruct this portion of the Inner Loop in its current state is 1.32 times greater than the proposed project. Replacement of this section of the Inner Loop is therefore cost effective.

**Benefit/Cost Analysis ratio – 1.44 - 2.45*\**
* see Benefit Cost Analysis appendix
6. **Job Creation & Economic Stimulus**

The project promotes the short-term creation or preservation of jobs in the immediate future during construction and long term with the expanded business opportunities resulting from the vacated land. The total amount of funds that will be expended on construction and construction-related activities by all of the entities participating in the project is $30,600,000.00. Per the White House Council of Economic Advisers metric of 11 jobs created per million dollars invested, the project is anticipated to create 337 jobs. Based on an accepted average of 250 square feet per employee, the private investment in redevelopment leveraged by this project will create between 1,840 to 3,680 long-term jobs in this economically-distressed inner city. Business enterprises to be created or directly benefit from the project during construction and later when the project is operational include: local and regional construction companies, private developers, retail and restaurant businesses, local and regional suppliers to NYSDOT, City of Rochester and Monroe County in the routine maintenance and operation needs.

The City of Rochester will utilize the Federal Training Special Provision required in federal-aid construction contracts and Disadvantaged Business Enterprise provisions in both the consultant agreements and construction contracts. We have been prohibited by the New York State Department of Transportation from using the City’s Incentive Program for Construction Contracts to provide, at wholly City cost, construction contractors an incentive to employ economically-disadvantaged workers who reside within the City.

The New York State Department of Transportation (NYSDOT) under Federal-aid administration requirements prohibits local hiring provisions in federal-aid construction contracts. The City will work with the NYSDOT Regional Compliance Specialist to assist contractors in meeting the requirements of the Federal Training Special Provisions to connect contractors with apprentices.

The City of Rochester complies with the New York State Department of Transportation’s Guidelines for Locally-Administered Federal-Aid Projects to accomplish federal Equal Employment Opportunity and health and safety objectives. The federal aid construction contracts include both New York State and federal prevailing wage rate provisions, OSHA safety and training requirements, and EEO compliance provisions.

Although the benefits from this project will be shared regionally, direct benefits of the project will be focused on the people of the City of Rochester, an Economically Distressed Area.
7. **Secondary Benefits**

**Innovation**

The project, in and of itself, is a highly innovative transportation investment. Removal of outdated expressway facilities has proven effective in Milwaukee, San Francisco, and Portland and is being pursued in other cities nationwide. The resulting surface boulevard will incorporate one or more modern roundabouts to enhance traffic operations and improve safety. Bicycle lanes will be incorporated in the design to provide improved bicycle accommodations.

This project will incorporate a number of on-going ITS efforts in the Rochester area such as arterial management systems including computerized traffic signal systems and traffic surveillance cameras remotely monitored by the Monroe County Department of Transportation at the Regional Traffic Operations Center. The signals will be equipped with traffic signal pre-emption for the Rochester Fire Department and, if appropriate, transit signal priority for Regional Transit Service buses. Signalized pedestrian crossings will feature countdown pedestrian signals and, if appropriate, Leading Pedestrian Interval timings.

**Partnership**

Recognizing the importance of this project to the continued revitalization of the downtown area, the City of Rochester has committed a 20% local cash match ($6,120,000) on the total project cost. The requested TIGER investment represents 74% of the total project cost. Given the size and complexity of this project, it is unlikely that it could be completed without federal assistance. Given the timing of the next surface transportation reauthorization legislation, TIGER represents the only current opportunity to complete the project budget and move to construction.

New York State and Monroe County are active members of the Project Advisory Committee which has guided the Inner Loop East Reconstruction project to this point. In addition, the Rochester Downtown Development Corporation and Southeast Area Coalition, non-profit community groups representing the interests of residents and businesses in the project area, have been involved in the Project Advisory Committee.
APPENDICES
September 15, 2009

Ms. Lana Hurdle, Acting Assistant Secretary for Budget and Programs  
Mr. Joel Szabat, Deputy Assistant Secretary for Transportation Policy  
U.S. Department of Transportation  
1200 New Jersey Ave, SE  
Washington, DC 20590

Dear Ms. Hurdle and Mr. Szabat:

I would like to express my support for the Inner Loop East Reconstruction & Realignment project through the Transportation Investment Generating Economic Recovery (TIGER) program. This project has been a key component of every City planning document since the 1990 Comprehensive Plan and is widely supported in the community. The Inner Loop East Reconstruction & Realignment project is listed in the current Genesee Transportation Council (MPO) Transportation Improvement Program and the Statewide Transportation Improvement Program. Preliminary engineering for this project is well underway.

Removal of the southeastern segment of the Inner Loop between Monroe Avenue and Charlotte Street will eliminate an underutilized grade-separated highway that has served as a barrier between Downtown Rochester and adjacent city neighborhoods. Replacement of the Inner Loop with an at-grade urban boulevard will reconnect our city and free up acres of valuable land for mixed-use redevelopment. This investment will create hundreds of construction jobs in the near-term while leveraging considerable private development that will create thousands more jobs in the long-term.

The project has a total cost of $30,600,000; we request $22,560,000 (74%) in TIGER funds to complete the design phase and fully construct the project. An additional $1,920,000 (6%) was secured for engineering and design in SAFETEA-LU and the project will include a minimum $6,120,000 (20%) local match. The return on this high priority transportation investment will more than pay for itself.

In closing, I am in full support of the Inner Loop East Reconstruction project and this request for funding through the TIGER program.

Sincerely,

Robert J. Duffy  
Mayor
DATE: September 15, 2009

SUBJECT: Federal Wage Certification – TIGER Discretionary Grant Program

I hereby certify that the requirements of Subchapter IV of Chapter 31 of Title 40 of the United States Code (Federal Wage Rate Requirement) will be met in the utilization of any funds granted to the City of Rochester under the American Recovery and Reinvestment Act and Transportation Investment Generating Economic Recovery (TIGER) program.

[Signature]
Paul Holahan
Commissioner
City of Rochester Department of Environmental Services
INNER LOOP EAST RECONSTRUCTION & REALIGNMENT
EXISTING CONDITIONS

Aerial View of Existing Inner Loop Expressway Section Between Monroe Avenue and Charlotte Street

PROPOSED ALIGNMENT

View of Project Area After Completion of Inner Loop Reconstruction & Realignment Project Noting Large Amount of Developable Land
September 15, 2009

United States Department of Transportation (USDOT)
TIGERgrants.dot.gov

Re: Notice to USDOT – Certification that Proposed TIGER Project will be Included in the TIP at Time of Award

The June 17, 2009 Federal Register Notice of Funding Availability for Transportation Investment Generating Economic Recovery (TIGER) grants, pages 28760 and 28761, states that projects must be included in the TIP and/or STIP either at the time the TIGER grant application is submitted, or there must be a separate certification provided that the projects will be on the appropriate TIP and/or STIP at time of grant award.

The Genesee Transportation Council (GTC) has been made aware that the City of Rochester is submitting a TIGER grant application for the Inner Loop Reconstruction project. GTC will amend the TIP consistent with the adopted GTC TIP Procedures Manual to include additional funding for the project if USDOT selects it to receive TIGER funding.

Sincerely,

Richard Perrin, AICP
Executive Director

cc: Robert A. Traver, Acting Regional Director – NYSDOT – Region 4
### Janes Road

**Project Name:** Janes Road  
**Project Type:** Highway Reconstruction  
**Est. Completion Date:** Jan-07  
**Lead Agency:** Town of Greece  
**Project Desc.:** Reconstruct Janes Rd. from Long Pond Rd. to Island Cottage Rd. in the Town of Greece  
**Principal County:** Monroe  
**Prin. Municipality:** Greece  
**TIP #:** H01-02-MN1  
**PIN:** 475346  
**Mode:** Highway

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#### Revenues

**Federal Revenues**
- **STP-Urban**
- **STP-Flex**
- **HSIP**
- **STP-Small Urban**
- **STP-Rural**
- **NHS**
- **IM**
- **HBP**
- **CMAQ**
- **Other**

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**Notes:** Amended 6-15-06 (Res. 06-41).

### Inner Loop East

**Project Name:** Inner Loop East  
**Project Type:** Other  
**Est. Completion Date:** Oct-14  
**Lead Agency:** City of Rochester  
**Project Desc.:** Scoping to advance the Inner Loop Reconstruction Project in the City of Rochester  
**Principal County:** Monroe  
**Prin. Municipality:** Rochester  
**TIP #:** H01-05-MN1  
**PIN:** 494077  
**Mode:** Highway

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#### Revenues

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**Notes:** Amended 6-15-06 (Res. 06-46).
ARRA ECONOMICALLY DISTRESSED AREAS IN NEW YORK STATE

ARRA Economically Distressed Areas

Economic Condition
- Economically Distressed
- Not Economically Distressed

Data Sources:
Bureau of Economic Analysis,
Bureau of Labor Statistics,
Local Area Labor Statistics

IYSDOT - July 2009
ARRA Economically Distressed Areas (EDAs)
As of July 20, 2009

Economically Distressed Areas, as illustrated on the accompanying map, include 4 cities and 36 counties. They include:

**Counties >= 1% over National Rate (Jan 2009)**
Jefferson

**Cities >= 1% over National Rate (Jan 2009)**
Buffalo
Rochester
Newburgh
Niagara Falls

**2007 County Per Capita Income <$30,892**
Chautauqua
Cattaraugus
Allegany
Genesee
Wyoming
Livingston
Yates
Schuyler
Chemung
Cayuga
Seneca
Tompkins
Chenango
Cortland
Tioga
Oneida
Madison
Delaware
Otsego
Herkimer
Hamilton
Washington
Greene
Counties >= 1% over National Rate (Jan 2009) AND 2007 County Per Capita Income <$30,892
Bronx
Niagara
Orleans
Oswego
Lewis
St Lawrence
Franklin
Clinton
Essex
Fulton
Montgomery
Schoharie
A simple cost benefit analysis was conducted to determine cost and benefits of raising the Inner Loop from Monroe Avenue to Charlotte Street. Major reconstruction of the existing Inner Loop will be needed at some point in the near future due to its age and condition (original construction circa 1950). This analysis is particularly based on information contained in a study conducted in the year 2000 of raising portions of the Inner Loop.

**Construction Costs**

The current estimated cost to raise this portion of the Inner Loop is estimated at $30.6 million. The 2000 study found that the cost of reconstructing the existing Inner Loop (in kind) would be 1.32 times greater than the cost to raise it. Thus, the overall construction costs of raising this portion of the Inner Loop would be less expensive than reconstructing the Inner Loop, as is.

**Economic Growth Opportunities**

**Land Value**

Raising this portion of the Inner Loop to grade was estimated in the 2000 study to open up approximately 9.2 acres of land for resale. The value of land in this area, based on City tax assessment varies around $225,000 per acre. Thus sale of this land would be expected to net over $2.0 million.

**Re-development Size and Value**

The 9.2 acres of vacated land would support 460,000 to 920,000 square feet of additional new development. With new development construction costs around $140 per square foot this would generate $64.4 to $128.8 million of investment in this area. Additionally this development would create 708 to 1,416 construction jobs (based on 11 jobs per million dollars invested).
Property Taxes – Non Homestead

County, City and School taxes are 0.533% of the value of development; thus, these new developments would result in an additional $3.5 to $6.87 million per year to these government agencies.

Transportation Benefits and Costs

Accident Reduction Benefit

A recent analysis of the reduction and severity of accidents that would result with raising the Inner Loop shows an accident reduction benefit of over $947,000 per year (estimated in a separate memo).

Sustainability - Addition Travel Delay Costs

Energy cost savings and reductions in vehicle emission benefits have not been calculated in this analysis; however, should not be disqualified. These benefits would be somewhat reduced by the additional travel delay that would result from raising the Inner Loop. During the evening peak hour, raising the Inner Loop would add 2.2 seconds of delay per vehicle on the system or 3.4 hours of additional delay. That delay factored by 10 for daily total delay, multiplied by 330 for yearly delay, and time cost of $24.50 per hour results in a travel delay cost of around $275,000 per year. Again, this is a small cost of the overall benefits that would be attained with reduced energy costs and vehicle emissions.

Hence, safety and travel time user benefits are estimated at $0.672 million dollars annually.

Benefit/Cost Ratio

Taking these possible benefits and costs distributed over 20 years after completion of raising the Inner Loop (assuming a 4% discount rate) demonstrates a positive benefit to cost ratio. Including the calculated user benefits, sale and reinvestment in land and new property tax revenue, a benefit/cost ratio of 1.44 to 2.45 is expected. This return on these variables is dependent on the square footage and type of redevelopment that occurs in the land vacated by the highway system. It also does not reflect these additional benefits not quantified at this time, such as:

- Reduced road maintenance (snow removal, street cleaning, etc.) and other normal repairs associated with having 4 lane miles less of road and shoulder, along with three (3) multi-span bridges and three (3) traffic signals;

- The need to rehabilitate or reconstruct two (2) multi-span bridges, plus retaining walls;
Reference: Raised Inner Loop - Simple Benefit/Cost

- Improved health due to improved air quality due to less vehicle emissions;
- Energy cost savings;
- Multi-modal improvements to access and circulation;
- Eliminating a long standing barrier and improving community cohesion; and
- Meeting overall community desires.

If these other benefits were factored into the benefit cost analysis, the benefits incurred by every dollar spent would be expected to be at least 2 if not over 4 dollars.

**Conclusion**

This simple benefit cost analysis clearly demonstrates that the benefits of raising the Inner Loop should be well over two to three times the cost of construction. In addition, new development on the vacated land would be expected to create an additional 708 to 1,416 construction jobs in the future.

**STANTEC CONSULTING SERVICES INC.**

William C. Holthoff
Principal
bill.holthoff@stantec.com
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**SUBTOTAL**: $153.79 $75.04

**Benefit - Cost High Estimate** in million of dollars

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## Benefit - Cost Low Estimate

in million of dollars

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<th>YEAR (n)</th>
<th>Present Value</th>
<th>Worth Factor</th>
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**SUBTOTAL** : $101.54 $43.99

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Inner Loop Accident Data

The following information covers accident history for the Inner Loop (Rt. 940T) from the Monroe Avenue interchange to approximately Charlotte Street. The most recent information available represents a 38-month period between January 1, 2005 and March 7, 2008. The accident history identified a total of 40 accidents occurred along the Inner Loop in this area. The reportable accidents accounted for 26 (65%) of the total accidents and the non-reportable accidents accounted for 14 (35%) of the total accidents. The following list summarizes the type and number of accidents.

- Fixed Object – 18 (45%)
- Rear End – 10 (25%)
- Sideswipe – 6 (15%)
- Head On – 2 (0.05%)
- Overtaking – 1 (0.025%)
- Right Angle – 1 (0.025%)
- Head-on – 1 (0.025%)
- Unknown – 1 (0.025%)

The accident severity included 13 injuries (32%) and 27 (68%) property damage only. Fifty three percent of all accidents occurred during evening hours with 55% occurring on dry pavement conditions. As indicated above, 45% of the accidents involved collision with fixed objects (guide rail, curbing, abutment, debris). Only four of the 40 accidents occurred at a merge/diverge ramp locations. The accident rate for the corridor was calculated and compared to statewide accident rates for Principal Arterial expressways. The current accident rate is 2.15 accidents per million vehicle miles (acc/mvm) which is below the statewide average of 2.72 acc/mvm. Collision diagrams, detailed accident history, and rate calculations are attached.

An extended study area was also reviewed that included at grade adjacent corridors including Pitkin Street and Union Street. The following table summarizes the number of reportable accidents and the calculated accident rates for the corridor including intersections for each adjacent roadway.

Locations experiencing above state or county wide accident rates are highlighted in red. The Inner Loop expressway (Monroe to Charlotte) is experiencing accident occurrences below the statewide average rates. Each of the adjacent corridors is further assessed below.
ACCIDENT RATES

<table>
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<tr>
<th>Intersection</th>
<th>Number of Accidents</th>
<th>State/County Rate</th>
<th>Actual Rate</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intersection Rate</td>
<td>(excludes midblock accidents)</td>
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</tr>
<tr>
<td>Pitkin Street @</td>
<td>East Ave</td>
<td>8</td>
<td>0.34 / 0.22</td>
<td>0.44</td>
</tr>
<tr>
<td>Pitkin Street @</td>
<td>Broad Street</td>
<td>4</td>
<td>0.34 / 0.22</td>
<td>0.66</td>
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<tr>
<td>Pitkin Street @</td>
<td>Monroe/Chestnut</td>
<td>7</td>
<td>0.34 / 0.22</td>
<td>0.26</td>
</tr>
<tr>
<td>Union Street @</td>
<td>East Ave</td>
<td>17</td>
<td>0.34 / 0.22</td>
<td>1.13</td>
</tr>
<tr>
<td>Union Street @</td>
<td>Broad St</td>
<td>3</td>
<td>0.19 / 0.22</td>
<td>0.71</td>
</tr>
<tr>
<td>Monroe Avenue @</td>
<td>Howell St.</td>
<td>5</td>
<td>0.34 / 0.22</td>
<td>0.34</td>
</tr>
<tr>
<td>Link Rate</td>
<td>Inner Loop - 940T</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: accident rate calculations include "reportable" accidents only.

Pitkin Street corridor – 14 accidents occurred over the 38-month period. There were 5(36%) rear-end accidents, 5(36%) right angle, 1(8%) right turn, 1(8%) overtaking, 1(8%) pedestrian, 1(8%) overtaking, 1(8%) unknown accident. Ninety three percent of the accidents involved property damage only, with 64% occurring during daylight hours, and with 64% occurring on dry pavement conditions. The East Avenue and Broad Street intersections with Pitkin Street are experiencing accident rates above the state/county wide average rates. Review of the accidents occurring at either intersection does not show a predominant accident pattern.

Union Street corridor – 33 accidents (reportable and non-re-portable) occurred over a 38-month period. There were 13(37%) right angle, 4(11%) rear-end, 4(11%) fixed object, 3(9%) right turn, and 3(8%) unknown, 2(6%) left turn, 2(6%) backing up, and 2(6%) sideswipe accidents. Eighty nine percent of the accidents involved property damage only and occurred throughout the daylight/evening hours with 74% occurring on dry pavement conditions. Further review of the actual reports suggests that the rear end accidents were primarily a result of following too closely. The East Avenue intersection with Union Street is experiencing accident occurrences above the state/county wide average rate.

East Avenue Intersection – of the 17 accidents that occurred at this intersection, 12(71%) were right angle accidents. These accidents are attributable to driver inattention and possible visibility constraints related to the bridge railing over the Inner Loop and the building on the southeast quadrant.

Safety Benefits Evaluation

Safety benefits can be derived by calculating the projected reduction in accidents as a direct result of the proposed improvements or project, and the severity distribution is checked for significance as compared to the statewide norm (this is an important statistical assessment step). Then the safety benefits are calculated by comparing before accident experience with the after projection. Accident costs are updated periodically (6/13/2008) by the NYSDOT, which were used in this calculation.
The safety benefits evaluation methodology is documented in the New York State Department of Transportation “Highway Safety Improvement Program Procedures & Techniques”. Form TE 164 has been used and prepared for this project.

Consideration was given to the unique nature of this project. The TE 164 form and evaluation methodology was developed for more straightforward highway safety projects, hence, liberty was taken to extrapolate the methodology to resemble this project. Calculating estimated accident costs for the year 2035 with no improvement (base condition) is pretty straightforward. However, considering the Inner Loop project is eliminating an expressway, its ramps/merge/diverge points of access and creating a brand new arterial/boulevard with significantly geometric characteristics, assumptions were made in developing a reasonable estimate. The following basic assumptions for the three corridors were made:

**Pitkin Street** – for purposes of estimating safety benefits, Pitkin Street will most likely be converted into an alleyway to provide access to adjacent existing and potential new developments in the area only. Major signalized intersections at East Avenue and at Broad Street will be eliminated. No connection south/west of Broad Street is anticipated. With these changes, it was assumed that all the accident patterns observed would be reduced. The significance check of severity distribution for current accident occurrences indicates “no” significance. So based on average accident costs, an Estimated Annual Safety Benefit of $184,304 may result.

**Inner Loop & Union Street** – for purposes of estimating safety benefits, the statistical data for both the Inner Loop and Union Street were combined. The proposed improvement includes bringing the current Inner Loop (limited access, high speed, expressway) to an at grade configuration along the Union Street corridor. Union Street will be converted to a two-way arterial, all on/off access ramps will be eliminated, and improved geometric intersection alignments are assumed with left turn lanes, medians, and possible roundabouts along the new Union Street corridor. Considering this new arterial maybe a hybrid of both corridors, current ADT estimates and number of accidents for both the Inner Loop expressway and Union Street were combined. Accident reduction includes only the expressway/ramps accidents will be eliminated. No other reductions are assumed considering the improved geometric characteristics will reduce accidents, however higher volumes and two-way operations may off-set any reductions. The significance check of severity distribution for current accident occurrences indicates “no” significance. Based on average accident costs, an Estimated Annual Safety Benefit of $762,934 may result.

The combined total project **Estimated Annual Safety Benefits** of **$947,238** is anticipated.

---

**STANTEC CONSULTING SERVICES INC.**

Attachments: Safety Benefits Evaluation Form
LOCATION

NEW AT-GRADE ARTERIAL (IL + Union)

At Intersection with
(if applicable)

STUDY PERIOD
From 1/1/2008
To 3/7/2008
No. of Yrs. 3.16

PROPOSED IMPROVEMENT:

The proposed improvement includes bringing the current Inner Loop (limited access, high speed, expressway) to at grade configuration along the Union Street corridor. All on/off access ramps will be eliminated in this section. Improved geometric intersection alignments are assumed with Lt. lanes, medians and possible roundabouts. Union Street will be converted from one-way to a two way arterial.

METHOD I (From Reduction Factor Table)

Average Reduction Factor _____%

METHOD II (Engineering Analysis)

a. Total Accidents:
   73
b. Accidents Reduced:
   40
C. Calculated RF (b/a):
   55%

METHOD III (For General Upgradings)

a. Existing Accident Rate:
b. Future Accident Rate:
c. Difference (a-b):
d. Calculated RF (c/a):

BRIEFLY EXPLAIN HOW EXPECTED REDUCTION WAS DERIVED:

For this analysis method current ADT and # of accidents for both the Inner Loop expressway and Union Street were combined. Accident reduction includes only the express/ramps accidents are will be eliminated. No other reductions are assumed considering the improved geometric characteristics will reduce accidents, however higher volumes and two way operations may off-set any reductions.

SIGNIFICANCE CHECK OF SEVERITY DISTRIBUTION

<table>
<thead>
<tr>
<th></th>
<th>FATAL</th>
<th>INJURY</th>
<th>F &amp; I</th>
<th>PDO</th>
<th>TOTAL</th>
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<tbody>
<tr>
<td>a. % by severity</td>
<td>0.41%</td>
<td>38.26%</td>
<td>38.67%</td>
<td>61.33%</td>
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<tr>
<td>b. actual</td>
<td>0.0</td>
<td>16.0</td>
<td>16.0</td>
<td>57.0</td>
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<td>c. expected</td>
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<td>27.9</td>
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BEFORE COST PER ACCIDENT CALCULATION

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BEFORE COST/ACC (Tot. Acc. Cost/ Tot. Acc.) #DIV/0!

A. ESTIMATED ANNUAL ACCIDENT COST WITH NO IMPROVEMENT:

ACC/YR 23.10 X VCF 1.16 X BEFORE COST/ACCIDENT $52,000 = $1,392,353.68

B. ESTIMATED ANNUAL ACCIDENT COST WITH PROPOSED IMPROVEMENT:

ACC/YR 23.10 X VCF 1.16 X (1.00- 0.55 RF) X AVG. COST/ACC. $52,000 = $629,420.15

ESTIMATED ANNUAL SAFETY BENEFITS (A-B) = $762,934
PROPOSED IMPROVEMENT:
The proposed improvement includes bringing the current Inner Loop (limited access, high speed, expressway) to at grade configuration along the Union Street corridor. All on/off access ramps will be eliminated in this section. Pitkin Street will most likely be converted into an alley way to provide access to adjacent existing and potential new developments in the area only. Major signalized intersections at East Avenue and Broad Street will be eliminated. No connection south/west of Broad Street anticipated.

Present AADT: 2800 Future AADT: 1680 Volume Correction Factor (VCF): 0.80

BEFORE COST PER ACCIDENT CALCULATION

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BEFORE COST/ACC (Tot. Acc. Cost/ Tot. Acc.) #DIV/0!

SAFETY BENEFITS

A. ESTIMATED ANNUAL ACCIDENT COST WITH NO IMPROVEMENT:

\[
\text{ACC/YR} \times \text{VCF} \times \text{BEFORE COST/ACCIDENT} = \frac{52,000}{\text{BEFORE COST/ACCIDENT}} = 184,303.80
\]

B. ESTIMATED ANNUAL ACCIDENT COST WITH PROPOSED IMPROVEMENT:

\[
\text{ACC/YR} \times \text{VCF} \times (1.00 - \text{RF}) \times \text{AVG. COST/ACC.} = \frac{52,000}{\text{AVG. COST/ACC.}} = -
\]

ESTIMATED ANNUAL SAFETY BENEFITS (A-B) = $184,304