I-70B Widening, from 24 ¾ Road to Rimrock Avenue, "Phase 2 Improvements"

TIGER II Grant Application

Grand Junction, Colorado **August, 2010**

An Urban Multimodal Corridor



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A. Project Identification

Applicant	Colorado Department of Transportation (CDOT) at www.dot.state.co.us
Project Type	Urban Multimodal – Highway, bicycle/pedestrian, transit
Location of Project	Grand Junction, Colorado, located in the 3rd Congressional District. Grand Valley Metropolitan Planning Organization is the designated Transportation Planning Region and Metropolitan Planning Organization.
Name of Project	I70B Widening, from 24 ¾ Road to Rimrock Avenue, "Phase 2 Improvements"
TIGER II Grant Request	$10 million
CDOT Duns	960738771

B. Contact Information

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Executive Summary

In 2007, long before "*livability*" became a leading criterion for competitive federal transportation grants, the stakeholders in the City of Grand Junction agreed upon the vision of ***"Becoming the most livable city in Colorado west of the Rockies."*** This goal is reinforced daily as the City, together with Mesa County and the surrounding bedroom communities, move forward together in this pursuit.

Grand Junction is located on the western slope of the Rockies, midway between Denver, Colorado and Salt Lake City, Utah (See Figure 1). The community is surrounded by the ochre yellow bluffs of the Grand Mesa and is home to the Colorado National Monument, a major tourist destination of sheer-walled, red rock canyons and plateaus. As the largest city on the western slope of Colorado, Grand Junction serves as a ***regional transportation hub*** to central Colorado and eastern Utah and, in this role, fulfills a wide array of vital public services.

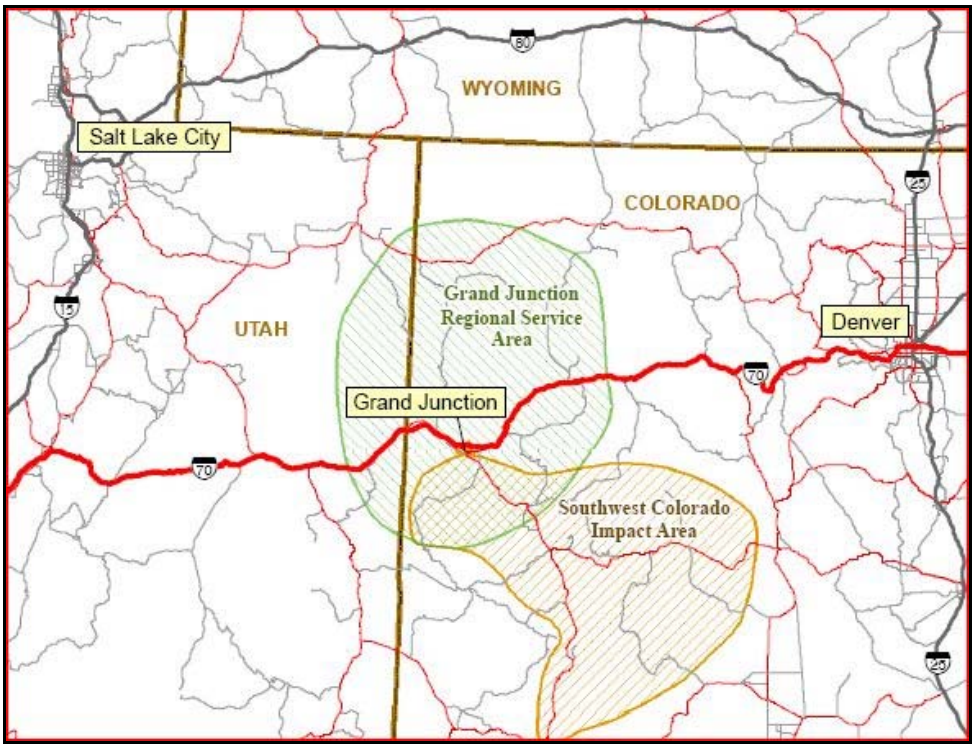

Figure 1- Vicinity Map

The I70 Business (I70B) Corridor in Grand Junction is a multi-modal National Highway System facility and inter-regional connector serving SH50 traffic through the Grand Junction business district from southwest Colorado to Utah. Construction has started on I70B Widening, Phase 1, with funding pieced together from various federal and state agencies and programs. This TIGER II application is for ***I70B Widening, from 24 ¾ Road to Rimrock Avenue***, the "Phase 2 Improvements" to the main lanes and frontage roads within the I70B Corridor (See Figure 2). Funding for the second phase is not currently available and without a TIGER II grant award, the project will be significantly delayed eight to nine years.

As the backbone of the transportation system in Grand Junction, I70B's multiple functions include:

- Serving inter-regional SH50 traffic from southwestern Colorado through Grand Junction and beyond to Utah
- Serving commuter traffic
- Serving as a gateway to Grand Junction for tourists
- Serving as a major arterial accessing regional employment centers, including the downtown area
- Serving other local land uses such as institutional facilities, recreational facilities and neighborhoods.[1]

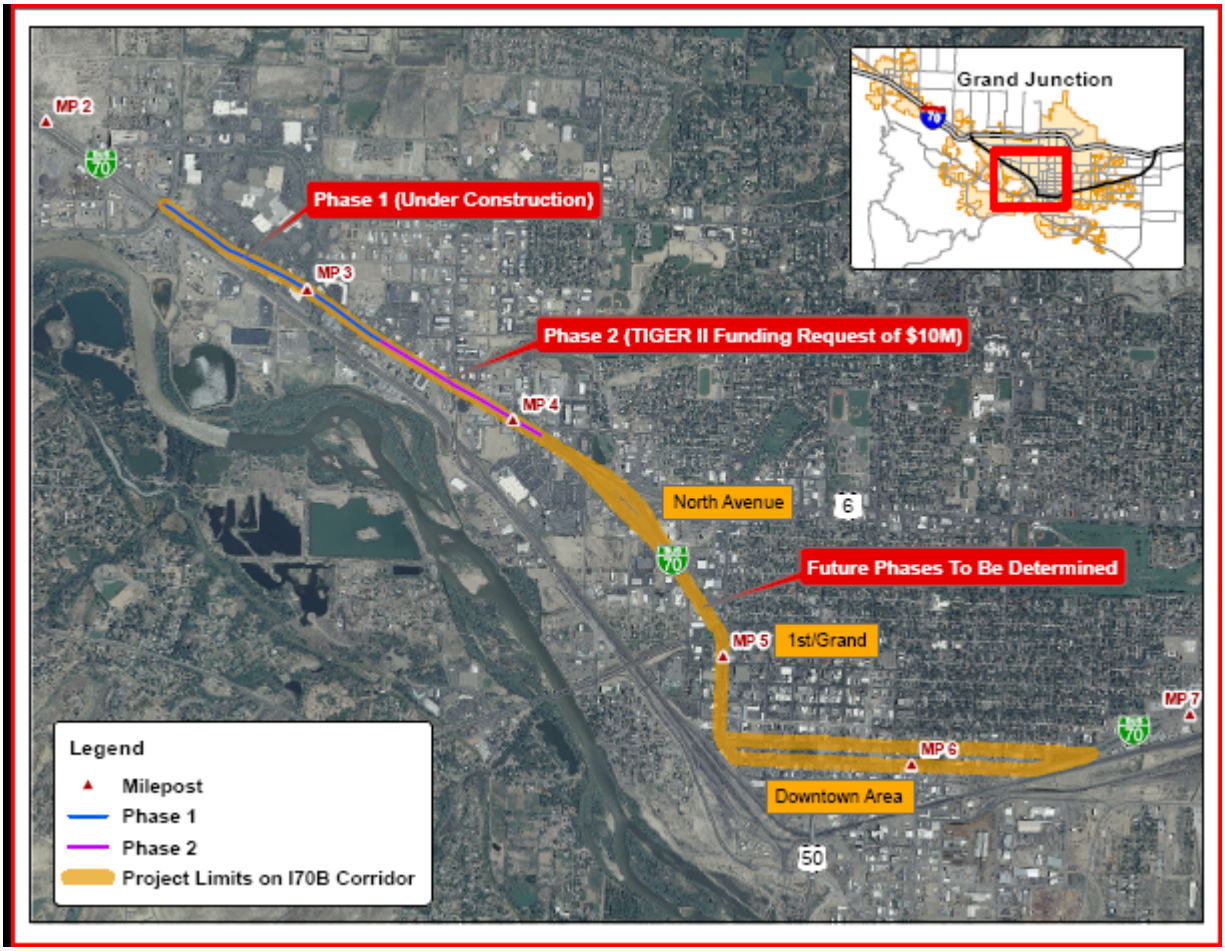

Figure 2 – I70B Corridor

This section of the I70B Corridor includes the highest traveled portion of I70B and has daily traffic volumes higher than any other roadway in the western slope communities of Colorado.[2] I70B was originally constructed with adjacent frontage roads and numerous crossover accesses to serve adjacent properties.[3] The commercial land uses in this part of the corridor have transitioned into higher traffic retail uses over time, which have resulted in traffic volumes and access needs inconsistent with the original frontage road system.[4] As a result, traffic capacity is hampered, and accidents are higher than for similar roadways across the state. [5]

The I70B Phase 2 Improvement Project is a **SAFETY** project. In 2007, the most recent year in which total accidents statistics are available for analysis, accidents occurred at a rate of ***one every three days*** on this segment of I70B. While primarily property damage and injury related only, these accidents have a significant economic impact to the individuals involved, the traveling public, and adjacent business owners.

The Benefit-Cost (B-C) analysis for this project compared the marginal benefits and costs of accelerating by eight years, from 2020 to 2012, the I70B Phase 2 Improvements with TIGER II funding. This analysis resulted in a B-C ratio of 13.9 with a sensitivity range of 10.3 to 16.9.

Using conservative accident rates, the marginal accidents reduced in this eight-year period include:

- Property Only Accidents Reduced 109
- Injury Accidents Reduced 56

Section I - Project Description

The I70B West Corridor is approximately four miles long and extends from 24 Road on the west to 15th Street on the east in Grand Junction. This specific project is the second section to proceed to design in the I70B Corridor and extends from 24 ¾ Road on the west to Rimrock Avenue on the east. It is approximately 3,300 feet long and will replace the existing four-lane asphalt roadway with a six-lane concrete road with raised median. Existing roadside ditches will be enclosed in a conduit system. Eight-foot wide concrete pedestrian sidewalks will be added the length of the project and will tie into the City of Grand Junction's extensive trail system known as the Riverfront Trail. Traffic signals will be upgraded and all utilities, including overhead electrical lines, will be relocated into a common utility trench. The existing frontage roads will be replaced with concrete and reconfigured the length of the project to consolidate access points to the main lanes of I70B. Xeriscaping will be used in landscape areas to reduce water demands.

The transportation challenges addressed in the project include[6]:

- Congestion – Traffic flows approach capacity during peak periods and are expected to exceed capacity several hours a day by 2030.
- Safety – Accident rates are higher along this segment of I70B than the average rate for similar roadways in Colorado.
- Access – The spacing and configuration of existing access locations contribute to congestion and high accident rates, and reduce the ability to safely and effectively access adjacent properties.
- Pedestrian, Bicycle and Bus Facilities – Limited pedestrian, bike and bus facilities currently exist within the project limits.

These challenges are addressed as follows:

- Congestion – I70B will be widened to a six-lane section in the corridor providing additional capacity and improved mobility.
- Safety – The raised center median and reduced access points along with the additional third lane will reduce the potential for accidents.
- Access – Access points will be reconfigured and consolidated.
- Pedestrian, Bicycle and Bus Facilities – Eight-foot concrete sidewalks will be added the length of the project. The sidewalk will allow bike and pedestrian users to access the Riverfront Trail, an eleven-mile long system of trails, sidewalks and pedestrian facilities contiguous with I70B, within Mesa County. I70B pedestrian crossings will allow safe movement to bus stops and transit facilities.

In summary, while primarily a SAFETY project, the secondary purposes of the I70B Phase 2 Improvement Project are to improve traffic flow while reducing congestion and travel time, to

improve livability through addition of multi-modal facilities, and to provide effective access along the I70B West Corridor, all in an environmentally sustainable manner.

Section II - Project Parties

The City of Grand Junction, the Grand Valley Metropolitan Planning Organization (GVMPO) and the Colorado Department of Transportation (CDOT) are the parties to this project. CDOT is the lead applicant.

Section III - Grant Funds and Sources/Uses of Project Funds

The City of Grand Junction is assisting CDOT staff with right-of-way acquisition for the project. CDOT has engaged Jacobs Engineering to prepare final construction drawings, contract documents and specifications. GVMPO has directed $3.6 Million (M) of funding allocated to CDOT through Colorado Senate Bill (SB) 09-108, FASTER (SAFETY) funds, to provide a local match for the project. Project information follows:

Total Project Cost	TIGER II Request	Local/State FASTER (SAFETY) funds	Project Length
$13.6M	$10M	$3.6M	3,300 ft.

Section IV – 1. Primary Selection Criteria (a) Long-Term Outcomes

(i) State of Good Repair

This project is consistent with relevant State, Local and Regional efforts to maintain transportation facilities in a state of good repair. The GVMPO prioritized I70B Improvements as the number one project in the region in its 2030 Regional Transportation Plan (RTP). Later, when a subsequent RTP changed from a project-based plan to a corridor-based plan, the GVMPO again prioritized this corridor and additionally budgeted 68 percent of its regional program funds to projects within this corridor. Unfortunately, due to reduced economic activity, the regional program has not been funded in the past few years and is not anticipated to be funded in the near future. Additionally, due to the current funding crisis, CDOT's emphasis has been focused primarily on maintenance with the majority of funding being dedicated to preservation of the transportation system.

The Colorado Highway Users Tax Fund is the source of funds used by CDOT to operate and maintain this National Highway System facility. The project is appropriately capitalized and uses asset management approaches that optimize its long-term cost structure.

CDOT maintains a rating system of roads and bridges across the state which uses an International Roughness Index to measure the ride quality of a roadway. (This is different from Present Serviceability Ratios which measure ride quality based on a subjective rating by an observer.) Good condition means there is a remaining service life of more than eleven years; a fair rating indicates a remaining service life of six to ten years, and a poor evaluation represents a remaining service life of less than six years.[7] I70B, within the project limits, is rated in fair

condition. This project will improve the road to a "good" rating and will replace the existing asphalt with concrete pavement, which will result in approximately $3.1M lower maintenance costs between 2012 and 2020. A life cycle cost analysis comparing concrete versus asphalt pavement for this project indicated a savings of 18.5 percent with construction of concrete pavement.

This section of the I70B corridor includes the highest traveled portion of I70B and has daily traffic volumes higher than any other roadway in the western slope communities of Colorado.[8] In the project location, I70B currently accommodates approximately 28,800 to 48,000 trips on an average day[9], a number that is expected to increase to approximately 54,000 to 61,000 trips by 2025 without improvements.[10] This increase in forecasted travel demand will exceed the capacity of the existing four-lane roadway, resulting in longer periods of congested conditions. With improvements, average daily traffic is forecast to increase to 65,000 to 84,000 vehicles per day[11] in 2035 due to additional demand where travelers choose to take I70B instead of other routes because of improved travel times and increased safety.[12]

Figure 3 – Typical congestion along I70B in peak periods

Given the forecasted population growth for the region and the resulting traffic growth, congestion and delay will worsen along the entire I70B Corridor if it is left unimproved. Level of service (LOS) is a measure of average vehicle delay incurred at an intersection. Intersections along I70B at 24 ¾ Road, 25 Road and Rimrock Avenue are currently operating at LOS B, C and C, respectively, in the evening peak period and are projected to decrease to LOS D, E and D by 2030.[13] LOS E is defined as "very long queues creating lengthy delays" (average vehicle delay of 55-80 seconds). Accepted traffic engineering practice dictates that intersections operating at LOS D or better are considered to be operating acceptably, while intersections operating at LOS E or F are generally in need of improvement. With the proposed improvements, the LOS is projected to rise to C, D and C for the three intersections in 2030.[14] Progression effects between intersections were also considered in the analysis.

I70B was originally constructed with adjacent frontage roads and numerous crossover accesses to serve adjacent properties.[15] The commercial land uses in this part of the corridor have transitioned into higher traffic retail uses over time, which have resulted in traffic volumes and access needs inconsistent with the original frontage road system.[16] As a result, traffic capacity is hampered, and accidents are higher than for similar roadways across the state.[17] (See v. Safety below.) Along the south side of I70B, "big box" retail is interspersed with light industrial and commercial establishments.[18] The north side has large retail developments, Mesa Mall, "big box" retail and smaller commercial establishments.[19]

Access is currently provided to properties via signalized intersections at major cross streets, unsignalized intersections between the major cross streets, and a two-way frontage road system with various connections to the signalized and unsignalized intersections. Access is generally direct between the frontage road to I70B and in all directions. During congested periods, properties experience long waits to access the main lanes and these unsignalized intersections present high potential for conflict. [20]

Limiting access better accommodates efficient regional traffic mobility over long distances at higher and consistent speeds.[21] Travel speed increases during congested hours in the range of 5 to 15 mph should be realized upon completion of the Phase 2 Improvements. A median is proposed in this section to eliminate unsafe uncontrolled left-turn movements onto I70B.[22] Turning movements at access points between major signalized intersections will be restricted and be consistent with CDOT's Access Policy Directive.[23] Finally, by adding additional capacity along I70B, congestion at all access points, including signalized intersections, will be reduced.[24]

If I70B were not improved, the transportation network efficiency would suffer and the safety and mobility of goods and people would be affected. The slow deterioration of the backbone of the transportation system would have a direct economic impact on the City of Grand Junction and the willingness of businesses to locate and to operate in this vicinity.

(ii) Economic Competitiveness

The local and regional economies are based on destination-oriented recreation and growing retirement communities.[25] A strong service sector also exists due to the area being the major market between Salt Lake City and Denver.[26] Health and medical services, construction, business, and professional services provide resources to neighboring areas in Colorado and Utah, creating a market area of approximately 500,000 people.[27] The area's manufacturing base includes semiconductor equipment, plastic and bicycle parts, as well as more traditional manufacturing such as metal production, machinery, chemicals, and transportation equipment.[28]

I70B is an important regional commercial corridor that provides access to most of Grand Junction's commercial and business areas. As shown in Figure 1, Vicinity Map, this roadway serves as a gateway between Utah and southwest Colorado. Two economically distressed areas (EDAs) in Colorado, Delta and Montrose counties, are located immediately south of Mesa County and will be directly affected by the project. EDAs also impacted in Utah include Grand County and parts of San Juan County.

Economic competitiveness benefits due to accelerating the I70B Phase 2 Improvements with TIGER II funding include a marginal travel time savings of approximately $2.5M. Because this is also a capacity project, a slight increase in vehicle operating costs of $0.3M is expected as the traveling public shifts from adjacent roadways to I70B. The effect of the shift in traffic on the remaining useable service life of the adjacent streets was not quantified, but it is expected that the service life would be extended.

A modal shift from vehicles to bike/pedestrian/transit facilities of approximately 1 to 2 percent is anticipated from the construction of sidewalks along the project length. However, the economic benefit of this transfer is minor compared to the other benefits of the project and is therefore not included in benefit calculations.

(iii) Livability

Named for its location at the confluence of the Gunnison and Colorado Rivers, Grand Junction is an outdoor-oriented and vibrant community. Population trends typically exceed that of the state, and even with the downturn in the economy, forecasts for continued growth are projected at 2.6 percent.[29] In keeping with the goal of "*Becoming the most livable city in Colorado west of the Rockies*", the downtown area has recently undergone a major upgrade to transform into a more walkable, art and destination oriented location. The I70B Phase 2 Improvements are located adjacent to the downtown area, a short distance via the bicycle trail system.

GVMPO is currently updating the 2035 RTP. Public involvement for this update consisted of on-line surveys, open houses and workshops to listen to the desires of citizens. Along with transportation projects, the addition of bicycle and pedestrian facilities was the number one request by stakeholders in the community. This I70B project satisfies both stakeholder priorities.

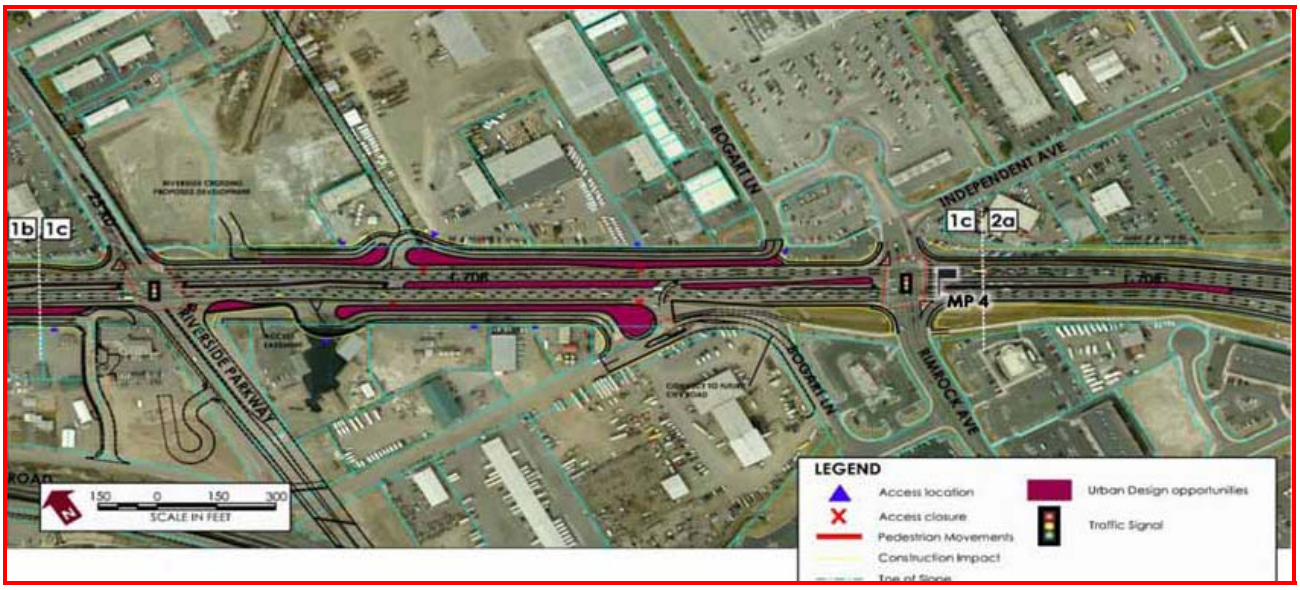

Figure 4 – Proposed I70B Phase 2 Improvements

The project will improve the living and working environments for residents within the I70B Corridor by improving transportation mobility, safety, access to businesses and pedestrian and bicycle facilities. The new roadway will be a stark contrast to the existing facility. Overhead electrical lines and utility poles will be removed and buried. Roadside ditches will be enclosed and remaining surface area xeriscaped. Medians and lighting will add to the enhanced environment. With new sidewalks constructed the entire length of the project and linking to the existing Riverfront Trail, user mobility will be enhanced through creation of non-motorized transportation options. I70B pedestrian crossings will allow movement to bus stops (within 150 feet) and transit facilities operated by Grand Valley Transit (GVT).

The new sidewalks will link the Riverside, El Poso, Pomona, Downtown and Redlands neighborhoods to the retail and commercial businesses along I70B. Except for the Redlands neighborhood, these areas are considered disadvantaged areas according to the Housing and Urban Development's Community Development Block Grant program (See Figure 5).

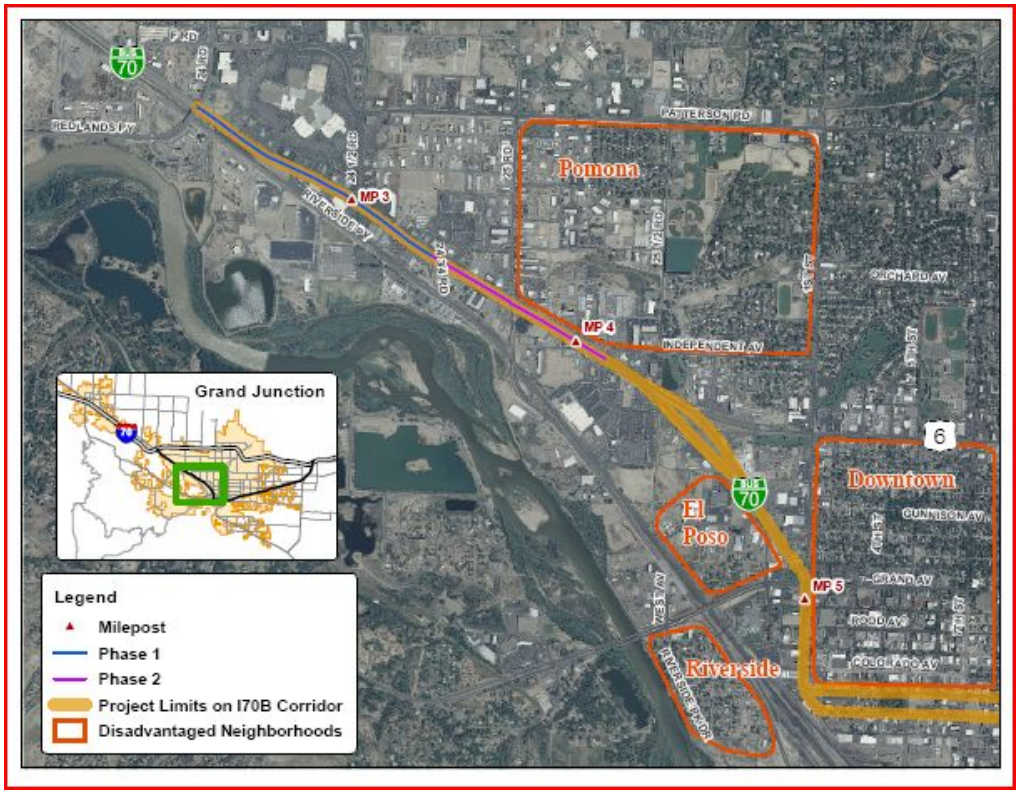

Figure 5 – Disadvantaged Neighborhoods near Phase 2 Improvement Project

According to the Housing and Transportation (H+T) Affordability Index, the household transportation costs for neighborhoods adjacent to the project location are greater than 28 percent south of I70B and 20-28 percent and greater north of I70B.[30] Although the I70B Phase 2 Improvements will reduce household transportation costs, it is unknown by how much. Regionally, this project impacts an area identified as Southwest Colorado Impact Area as indicated in Figure 1. The movement of people and goods between Utah and Southwest Colorado Impact Area, particularly from the EDAs, is linked by travel on the I70B Corridor.

In order to estimate the modal shift from vehicles to cars upon completion of the project, counts were taken along various bike routes north of the project and on existing pedestrian bridges over the Colorado River south of the project within a 0.5 mile area. It is estimated that approximately 1 to 2 percent of existing trips will be diverted to non-motorized modes upon project completion. Also, a small economic benefit may occur due to increased land/rental value upon completion of the project; however, this minor benefit is not quantified.

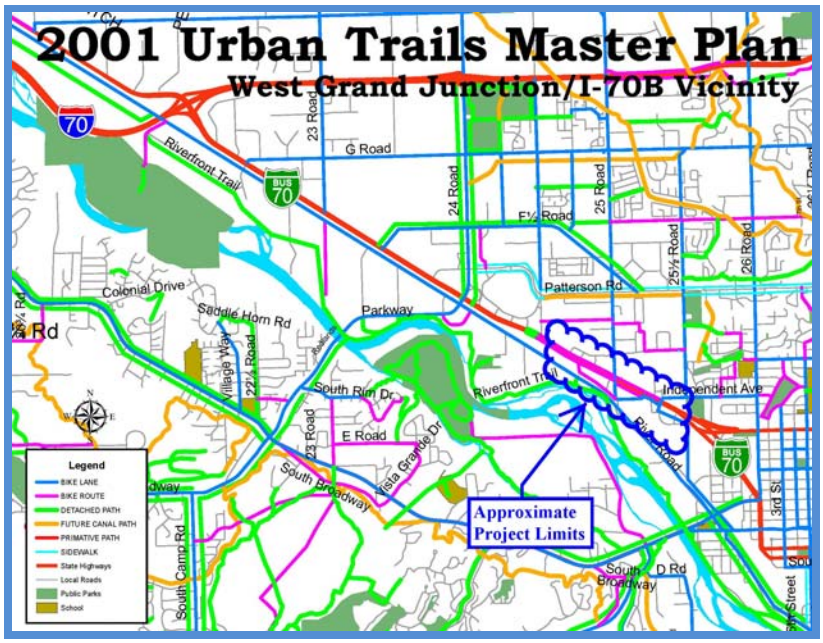

Figure 5 – Bike/Pedestrian Facilities in Project Vicinity

In an economic climate in which many transit companies are struggling financially, GVT ridership is continuing its upward trend (up 22 percent in the first half of this year) and is on target to exceed 1 million riders by the end of 2010.[31] As a comparison, ridership in the Denver Metro Area is down 3 percent in the 2nd quarter of 2010.[32] The I70B widening project will improve the ability of GVT buses to traverse the corridor and serve the numerous transit stops and destinations with less congestion delay. Service for the GVT customer will be enhanced with a more reliable on-time performance, thus improving access to and attractiveness of the service.

Land use plans in the vicinity of the corridor call for additional retail/commercial development and high density housing. Residents of the high density housing will benefit from the increased mobility provided by the multi-modal I70B improvements and allow those without access to automobiles a safer and more efficient access to all the facilities, shopping and services located along the Corridor. As reported in a 2010 GVT survey, more than 41 percent of bus riders are 19-34 years of age and 84 percent do not have a vehicle available to them.[33] According to the US Census Bureau, Colorado had the fewest cars, trucks, motorcycles and other vehicles registered per capita in 2008.[34]

Tied to promoting equitable, affordable housing, land use and mobility along the I70B Corridor is the proposal for a joint GVT/Greyhound bus transfer facility on 24 ½ road north of Mesa Mall

and ¾ miles north of I70B. With completion of both I70B Phase 1 and 2 Improvements, the proposed bus transfer facility will benefit from a more efficient commute by allowing additional time for buses to circulate within the 24 Road Corridor. This will provide more access to the individual route and the system as a whole. The location of the transfer facility in relation to proposed high density housing, employment centers and I70B provides opportunities for future transit oriented development.

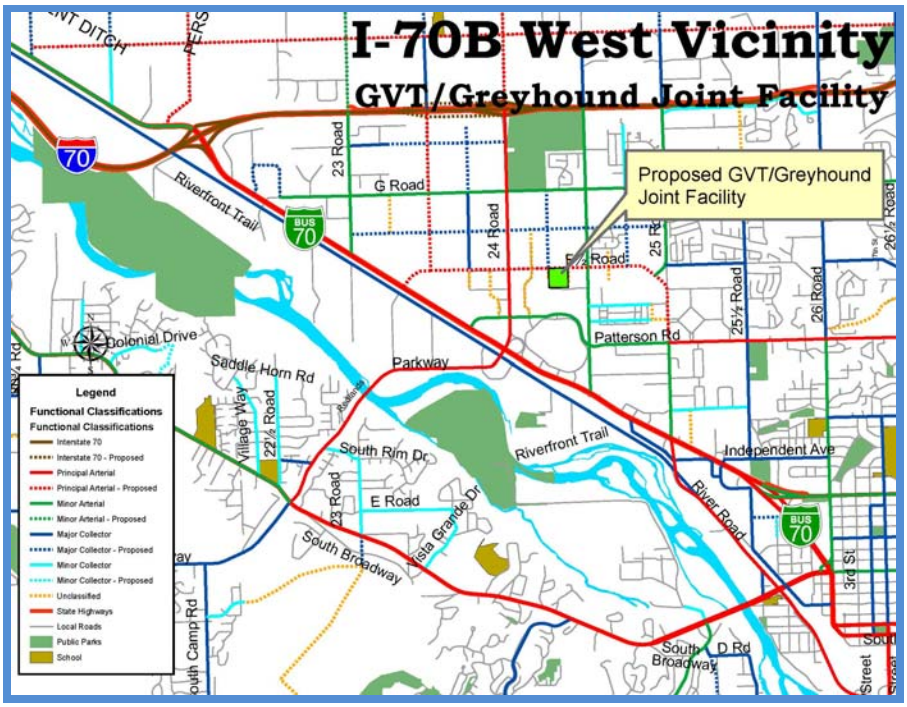

Figure 6 – Location of Proposed Joint Transfer Facility near I70B

The siting of this transit facility provides an example of the cooperative public/private partnership common in Grand Junction. After careful review of the initial sites, preliminary recommended sites, and bus routing, a final site was recommended for the development of a transfer facility in the vicinity of the Mesa Mall. The site is currently under development and was brought to the attention of the GVMPO by developers after the initial site selection process.

Construction of the Phase 2 Improvements will require construction phasing, staging areas, and detours, as well as temporary interruption of traffic along I70B intersections and frontage roads.[35] Delays due to construction are expected to create short-term impacts to local and regional traffic circulation and congestion and will have a minor impact on the traveling public.[36] To minimize disruption to traffic and local businesses during construction, work activities will be staged, work hours varied and four lanes of moving traffic will be maintained during the peak am and pm periods.[37] Also, throughout the construction phase, access will be preserved for each business and new access will be provided before the existing access is removed.[38]

Upon completion of construction, the public can expect to see travel speed increases in the range of 5 to 15 mph during congested hours. This increased speed will translate to a marginal reduction of approximately 94,000 congested hours.

The proposed I70B Phase 2 Improvements are the result of a Context Sensitive Solution (CSS) process, consistent with project goals and the livability goal of the City. The CSS process involved all stakeholders, including municipalities, agencies, and the public, in a collaborative process to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. **In every major transportation project undertaken in Grand Junction, each and every stakeholder or business is contacted and concerns and issues are resolved together.** This CSS approach considered the total context within which the I70B improvement project will exist.

(iv) Environmental Sustainability

Colorado's gross greenhouse gas (GHG) emissions are rising faster than those of the nation as a whole. The state's gross GHG emissions increased 35 percent from 1990 to 2005, while the national emissions rose by only 16 percent during this same period.[39] The principal sources of Colorado's GHG emissions are electricity use and transportation, accounting for about 37 percent and 23 percent respectively.[40] This trend is largely due to rapid population and production growth within the state.

Acknowledging this significant issue, Colorado has taken numerous actions to address these trends,[41] including adopting a state Climate Action Plan,[42] and calling for new GHG emission vehicle standards.[43]

In order to minimize life cycle costs, concrete pavement is being proposed on this project. New "green" concrete paving specifications have been developed by CDOT that allow for use of fly ash and recycled aggregate in the concrete mix. Existing asphalt on this project will be milled and reused as trench backfill and as base material under the new concrete pavement. Additionally, the City of Grand Junction will use any surplus asphalt material to resurface existing parking lots within the city limits. The project will include xeriscaping of medians greater than eight feet in width, which will reduce future water demands.

Because the I70B Phase 2 Improvement Project is also a capacity project, there will be a marginal increase in the amount of traffic over time. This minor increase translates to an undiscounted $13,809 carbon cost. However, the decrease in travel time due to reduction in congested hours will more than offset this cost.

(v) Safety

The I70B Phase 2 Improvement Project is a **SAFETY** project. In 2007, the most recent year in which accidents statistics are available for analysis, accidents occurred at a rate of ***one every three days*** on this segment of I70B. This high rate corresponded with the high average annual daily traffic (AADT) volumes recorded during 2007. Due to the downturn in the economy, traffic volumes dropped in 2008, but are expected to climb back to 2007 levels. While primarily property damage and injury related accidents only, these incidents have a significant economic impact to the individuals involved, the traveling public and adjacent business owners.

As reported in the "I-70B West Environmental Assessment (EA)", on average, accident rates are higher along the I70B Corridor than for similar roadways in Colorado. A detailed Accident Summary Report was prepared for the specific project location from the period 1/1/2003 through 12/31/2005, which resulted in a three-year accident rate of 4.6 accidents per million vehicle miles traveled. (The source data for the most recent accident statistics through 2007 were not in a format that allowed a comparison with the 2005 accident rate.) This Accident Summary Report did not reflect any fatalities, however, one known fatality occurred in 2007 within the project limits and another occurred in 2009, just outside the project limits. Using conservative accident rates, the marginal accidents reduced by accelerating construction of the I70B Phase 2 Improvement Project to 2012 include:

- Property Only Accidents Reduced 109
- Injury Accidents Reduced 56

The corresponding undiscounted value of this reduction is approximately $19.78M. Considering other crash-related costs of $13.49M, the total undiscounted value of this reduction is approximately $33.2M.

The average injury rate for the I70B Corridor as a whole is 1.72 injuries per million vehicle miles traveled – 60 percent higher than the statewide average for similar corridors (1.07 injuries per million vehicle miles traveled).[44] Since the injury accident rate exceeds the statewide average more than the average accident rates exceed the statewide average, accidents that do occur in the corridor are likely to be more severe than average.[45] As reported in the EA, approximately 74 percent of accidents reported resulted in property damage only, the remainder being injuries or fatalities.[46] Analyses of recent accident statistics through 2007 indicated that for the project specific location, approximately 85 percent of accidents reported resulted in property damage only, and of those, 82 percent were rear-end accidents.

A contributing factor to the high accident rates along this section is the high number of vehicle conflict points associated with the intersection and driveways. A significant portion of the accidents within the project limits are due to rear-end accidents which often occur when vehicles stop or slow down in the through travel lane.[47] These stopping or slowing vehicles could be a result of the intersection control (signals), or turning into and out of access points (driveways and streets).[48] Access is extremely important to businesses and other land uses along I70B, yet directly affects both congestion and safety needs. As traffic volumes increase, access becomes more difficult at all locations.[49] This is confirmed by the increase in accidents experienced in 2007 due to high traffic volumes.

One of the most dangerous issues related to business access is the location of the existing frontage road, which is situated in close proximity and parallel to I70B, making maneuvers between the two roadways dangerous.[50] Observations of traffic operations between the two facilities indicate unexpected conflicts and dangerous conditions.[51] Unexpected conflicts occur because these intersections typically have more approaches and the approaches are often parallel to each other, becoming hard to see for many drivers.[52] Another safety concern is the conflict between the turning traffic at numerous access points and through traffic movements.[53]

To address these safety needs, the proposed improvements in this project will address these conflict points while providing improvements that have a high likelihood of reducing accident rates. By providing a median along I70B in this section, unsafe uncontrolled left-turn movements onto I70B will be eliminated.[54] (According to the "Desktop Reference for Crash Reduction Factors," installing a raised median as a countermeasure can result in as much as a 25 percent reduction in accidents.) By providing ¾ access points (Right turn in, right turn out and left turn in) between major signalized intersections, businesses will be provided relatively frequent ingress points.[55] By limiting the number of access points between signalized intersections, access maneuvers that slow down traffic and increase the potential for accidents will be minimized.[56] And finally, by adding additional capacity along I70B, congestion at all access points, including signalized intersections, will be reduced, providing more signalized green time for side roads and more gaps in traffic for ¾ movements.[57] (For rear-end accidents, increasing the number of lanes as a countermeasure can result in as much as a 52 percent reduction in accidents.)[58]

Currently, the I70B Corridor lacks adequate pedestrian, bicycle and bus facilities. Facilities that do exist are discontinuous. This lack of infrastructure and connectivity creates a safety concern for those using transit and other modes of travel.[59] Interviews with business owners and residents confirm that trips that could be taken by foot, bike, or bus, are not being taken due to lack of infrastructure and unsafe conditions.[60] Another specific problem, which will be address with the I70B Phase 2 Improvements, is the absence of designated pedestrian crossings of I70B.

(vi) Evaluation of Expected Costs and Benefits

The B-C analysis for this safety project compared the marginal benefits and costs of accelerating by eight years, from 2020 to 2012, the I70B Phase 2 Improvements with TIGER II funding. This analysis resulted in a B-C ratio of 13.9 with a sensitivity range of 10.3 to 16.9. The B-C analysis Project Summary and spreadsheets can be found in Appendices 1 and 2.

Using conservative accident rates, the marginal accidents reduced in this eight-year period include:

- Property Only Accidents Reduced 109
- Injury Accidents Reduced 56

The B-C analysis was conducted in accordance with the Notice of Funding Availability, Docket No. DOT-OST-2010-0076. The I70B Phase 2 Improvement Project (Alternate Case) was measured against a "base case" or a "without (w/o) TIGER II funding" case. The base case is an assessment of the way the area would look if the project did not receive the requested TIGER II Discretionary Grant.

The following table summarizes the benefits and costs of the project.

Project Component	Undiscounted Costs	Undiscounted Benefits
State of Good Repair		
Capital, O&M Savings		$ 3,141,728
Remaining Capital Value	$ 3,626,667	
Economic Competitiveness		
Public Health Effects of Modal shift from vehicles to bike/ped.		100 to 400 trips/day expected to shift from vehicles to bike/ped not monetized.
Livability		
Construction Impacts	Minor impacts during construction not monetized.	
Travel Time Savings		$ 2,455,253
Vehicle Operating Costs	$ 300,720	
Increase in land/rental value		Minor increase in value anticipated but not monetized.
Reduction in Household Budget spent on Transportation		Not monetized.
Sustainability		
Carbon Costs	$ 13,809	
Reduction in Water Demand		Reduction in water demand due to xeriscaping not monetized.
Use of sustainable materials		Green concrete, recycle of asphalt materials not monetized.
Safety		
Accident Reduction		$ 33,261,865
Totals	***$ 3,941,196***	***$ 38,858,846***

(vii) Evaluation of Project Performance

If the I70B Phase 2 Improvements are selected for TIGER II funding, CDOT will work with the Department of Transportation (DOT) on the development and implementation of a plan to collect information and report on the project's performance with respect to the relevant long-term outcomes expected to be achieved through construction of the project.

1. Primary Selection Criteria (b) Job Creation & Economic Stimulus

(i) Project Schedule

The Project Schedule can be found in Appendix 3. Short-term employment will occur as part of the construction project. The number of jobs to be created follows:

Quarter	Full Time Equivalents, FY 2012
1	76
2	105
3	46

(ii) Environmental Approvals

A FONSI for the I70B West Corridor Environmental Assessment was approved by Karla S. Petty, P.E., FHWA Division Administrator on 8/8/08 and can be referenced at http://www.coloradodot.info/library/studies/i70bwest/i70bwestfonsi_august_2008.pdf/view .

(iii) Legislative Approvals

The project did not require legislative approval. Letters demonstrating broad support for this project are attached in Appendix 4.

(iv) State and Local Planning

The I70B Corridor is identified as one of five priority corridors of high importance in the GVMPO 2035 RTP, as approved in January 2009. Significant funding, more than 68 percent, is directed to improvements on this corridor in the RTP.

The current Statewide Transportation Improvement Program (STIP) identifies short-term funding for fiscal years 2008 through 2011. Grant award will trigger inclusion of this project in the GVMPO Transportation Improvement Program (TIP) and STIP.

(v) Technical Feasibility

The project is technically feasible and final engineering design is 30 percent complete. ROW acquisition is complete and utility negotiations are underway. Based on CDOT's experience, the project will be ready to proceed to construction in the fall of 2011.

(vi) Financial Feasibility

The project is financially viable. Through CDOT, GVMPO has directed $3.6M of allocated Colorado FASTER (SAFETY) money to this project. Securing a TIGER II grant award will complete the funding package and the project will be able to proceed to construction.

2. Secondary Selection Criteria (a) Innovation

This project uses the following innovative approaches:

- To minimize life cycle costs and CO2 emissions, "green" concrete pavement was selected for this project. The concrete mix uses fly ash and recycled aggregates in lieu of traditional materials.
- The existing asphalt surface will be milled and reused as trench backfill and base material under the new concrete. Excess asphalt will be recycled by the City of Grand Junction to resurface/rehabilitate parking lots.
- After completion of construction, medians will be xeriscaped with native grasses and plants suitable for the arid conditions experience on the western slope. These locations will need less mowing, maintenance and water, increasing the overall sustainability of the project.
- An Intelligent Transportation System is currently operational on I70B within the project limits to provide optimum traffic flow, thus reducing congestion and CO2 emissions. The fiber optic line and all utilities are being relocated into a common trench to minimize future disruption to the traveling public and to keep the pavement in a state of good repair.
- In recognition of the volume of traffic, the contractor will be required to keep four lanes of traffic moving during construction. While there will be some traffic impacts due to construction activities, the public will experience minimal delays and inconvenience in their normal day to day travels along I70B.

2. Secondary Selection Criteria (b) Partnership

(i) Jurisdictional & Stakeholder Collaboration

As mentioned in Primary Selection Criteria above, in every major transportation project undertaken in Grand Junction, **each and every stakeholder** or business is contacted and concerns and issues are resolved together.

Challenges and issues are routinely addressed with multi-jurisdictional cooperation. A prime example of this cooperative spirit is the willingness of the City to provide resources to CDOT to leverage investment opportunities. When it became apparent that CDOT did not have sufficient staff to complete numerous ROW purchases for an American Recovery and Reinvestment Act project, the City volunteered to join forces to complete this crucial task.

(ii) Disciplinary Integration

The City of Grand Junction, the GVMPO and the CDOT are the parties supporting the construction of this safety project.

Section V – Project Readiness and NEPA

At this time, the final engineering drawings, contract documents and specifications are approximately 30 percent complete. Based on CDOT's experience with project delivery, the project will be ready to proceed to construction in the fall of 2011. The project schedule is provided in Appendix 3. All environmental approvals are secured and utility negotiations are underway.

Section VI – Federal Wage Rate Certification

The Colorado Department of Transportation will comply with the requirements of subchapter IV of Chapter 31 of Title 40, United States Code (Federal wage rate requirements) as required by the FY 2010 Appropriations Act.

Signed: _____ Date: _____

Russell George
CDOT Executive Director

Section VII – Changes to the Pre-Application

No changes are necessary to the Pre-Application form.

Endnotes

[1] Colorado Department of Transportation (CDOT), "I-70B West Environmental Assessment (EA)," March 2008.
[2] Ibid.
[3] Ibid.
[4] Ibid.
[5] Ibid.
[6] Ibid.
[7] CDOT, "Fiscal Year 2009, Annual Performance Report," 2009.
[8] CDOT, "I-70B West EA."
[9] Ibid.
[10] Grand Valley Metropolitan Planning Organization (GVMPO), "2025 Travel Demand Model."
[11] GVMPO, "2035 Travel Demand Model."
[12] CDOT, "I-70B West EA."
[13] Ibid.
[14] Ibid.
[15] Ibid.
[16] Ibid.
[17] Ibid.
[18] Ibid.
[19] Ibid.
[20] Ibid.

[21] Ibid.
[22] Ibid.
[23] Ibid.
[24] Ibid.
[25] Ibid.
[26] Ibid.
[27] Ibid.
[28] Ibid.
[29] GVMPO.
[30] H+T Affordability Index, 2010, http://htaindex.cnt.org/mapping_tool.php
[31] American Public Transportation Association, 2nd Qtr 2010.
[32] Ibid.
[33] Grand Valley Transit, Ridership Survey, 2010.
[34] Denver Post, July 2010, http://www.denverpost.com/dontmiss/ci_15547587
[35] CDOT, "I-70B West EA."
[36] Ibid.
[37] Ibid.
[38] Ibid.
[39] Center for Climate Strategies, "Colorado Greenhouse Gas Inventory & Reference Case Projections, 1990-2020," January 2007, http://www.cdphe.state.co.us/ap/down/GHGEIJan07.pdf
[40] Ibid.
[41] Environmental Protection Agency, "Climate Change – State and Local Governments," July22, 2009, http://www.epa.gov/climatechange/wycd/stateandlocalgov/states/co.html
[42] http://www.colorado.gov/energy/greening/
[43]http://www.colorado.gov/cs/Satellite?c=Page&cid=1194261894265&pagename=GovRitter&2FGOVRLayout
[44] CDOT, "I-70B West EA."
[45] Ibid.
[46] Ibid.
[47] Ibid.
[48] Ibid.
[49] Ibid.
[50] Ibid.
[51] Ibid.
[52] Ibid.
[53] Ibid.
[54] Ibid.
[55] Ibid.
[56] Ibid.
[57] Ibid.
[58] USDOT/FHWA, "Desktop Reference for Crash Reduction Factors," Report No. FHWA-SA-07-015, September 2007.
[59] CDOT, "I-70B West EA."
[60] Ibid.