

**FINAL REPORT**

# I-70B

## CORRIDOR OPTIMIZATION STUDY

**APRIL 30, 2004**





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## 1.0 EXECUTIVE SUMMARY

I-70 Business loop (I-70B) extends approximately 13.5 miles through Mesa County and the City of Grand Junction and provides access to most of the Grand Junction commercial and business areas. It diverges from I-70 at Exit 26 and rejoins I-70 at Exit 37 linking I-70 to US 50 and State Highway (SH) 141. When I-70B was first conceived and built, its purpose was primarily to serve as the main commercial entrance into town and after the completion of I-70 it took on also took on the role of serving pass-through traffic from I-70. Back then, the “vision” of I-70B was to serve mainly travelers on I-70 by giving these motorists the opportunity to use visitor services in Grand Junction.

I-70B was initially constructed in the 1960’s with four lanes, closely spaced frontage roads, and frequent driveways. This design is substandard for today’s traffic and contributes to accidents and congestion related traffic delays. Local commercial growth has remained strong and traffic volumes along I-70B are steadily increasing. Several signalized intersections along the corridor are near capacity. In some areas there are numerous physical, environmental and social constraints to widening the roadway. The primary corridor issues include access, capacity and mobility. Other issues include frontage road controls, local arterials, transit, design and land use. Because Grand Junction is a regional commercial center, a large portion of traffic is attracted from outside the city area. The significant regional traffic generators are the Mesa Mall area, the downtown area, Mesa College, St. Mary’s Hospital, and Walker Field Airport.

The I-70B Corridor Optimization Study is a cooperative effort between the Colorado Department of Transportation (CDOT), Mesa County, the City of Grand Junction, and the Grand Valley Metropolitan Planning Organization (MPO). The study was initiated in summer 2003 to identify transportation needs and to provide input into the regional and statewide transportation planning processes. A project team was established with the members of the Grand Valley Technical Advisory Committee (TAC). The TAC consists of staff representatives from CDOT, Mesa County, City of Grand Junction, Grand Valley Transit, City of Fruita, and City of Palisade.

The main goal of this project was to conduct a corridor optimization study and develop a common understanding for the long-term vision of I-70B. A corridor optimization study examines the transportation needs of the corridor based on projected traffic growth, the planned land use development and community values of the corridor. The team successfully formed the I-70B Corridor Vision, established key evaluation criteria (based on the Vision), developed alternatives (corresponding to the Vision), and evaluated the alternatives (based on the established criteria). The team’s Corridor Optimization Study and its key findings have established a basis of knowledge that will be brought forward into the Regional Planning Process.

I-70B is the backbone of the transportation system in the Grand Valley. Based on the analysis performed in this study, providing capacity improvements along I-70B will provide the most effective improvement to achieve transportation mobility in the Grand Valley. The timing of the I-70B Corridor Optimization Study is opportune with the Riverside Parkway and 29 Road improvements underway by the City of Grand Junction and Mesa County. Improvements to I-



70B along with these other improvements provide the Grand Valley community with a greatly enhanced and efficient regional transportation system that will address long-range transportation mobility.

## 1.1 Corridor Vision

The Corridor Vision is the building block of the entire study and encompasses the perspectives of the project team members. The I-70B Corridor Optimization Study Vision is as follows:

- Provides an important link in the regional, state, and federal highway system
- Remains a critical element in the local transportation system
- Serves as an important regional commercial corridor
- Provides safe and reasonable access with efficient traffic flows
- Provides gateway access into and through the City center

Evaluation criteria were established by the project team in order to develop and evaluate the alternatives. To begin this process, the TAC referred to the I-70B Corridor Vision asking questions from each vision statement. These questions formed the basis of the development and evaluation for each alternative as reflected in the evaluation matrix shown in **Table 1**. How these questions are addressed for each of the alternatives will be a measurement of how well each alternative performs. The evaluation criteria reflect the needs of CDOT and the community while remaining consistent with the I-70B Corridor Vision.

## 1.2 Alternatives Development

The purpose of developing alternatives for this study was not to choose preferred projects but to determine the possible impacts associated with each alternative and to understand the relationship of I-70B to other regional roadways.

Alternatives were developed based on the established criteria and identified operational deficiencies. Twenty concept alternatives were developed and are shown in Appendix B. The alternatives were evaluated using the following data:

- 2030 VMT / VHT / Average Speed Data (see **Table 2**)
- 2030 AM Peak and PM Peak Volume and LOS Data (see Appendix C)
- Alternative Impacts (see Appendix B)/ Cost estimates (**Table 3** and Appendix D)
- Local knowledge and history by TAC members

The alternatives with the highest total score in the evaluation matrix included widening all or part of I-70B to six lanes, underscoring the fact that I-70B will need additional capacity in the



future. These alternatives meet future mobility needs. However, these are also the same alternatives that have some of the greatest access, environmental and cost impacts.

## 1.3 Findings

Through the evaluation process many key findings were recognized. These key findings reflect the long-range nature of I-70B and its relationship to the Grand Valley transportation network.

- I-70B along with I-70, Riverside Parkway, US 50, Patterson Road, US6/North Avenue and SH 340 are the key regional roadway systems and the quality of transportation in the Grand Valley is dependent on all these roadways functioning at an acceptable level.
- Based on the alternative analysis process I-70B will need additional capacity during the study's planning horizon 2004-2030.
- The City of Grand Junction completed the *Riverside Parkway Study* which determined that Riverside Parkway will play a role in the overall regional roadway system. Voters approved the funding of Riverside Parkway and this new roadway will help alleviate congestion on I-70B.
- The City of Grand Junction jointly with Mesa County completed the *West Metro Transportation Study* which determined that 29 Road is the key north-south corridor for providing an improved regional transportation network. The improvements on 29 Road include providing a new rail crossing, a new bridge crossing over the Colorado River, and an interchange at I-70.
- The location and timing of additional capacity improvements all along I-70B will be identified through the regional planning process.



## 2.0 INTRODUCTION

The I-70B Corridor Optimization Study is a cooperative effort between CDOT, Mesa County, the City of Grand Junction, and the Grand Valley MPO. The study was initiated in summer 2003 to identify transportation needs and to provide input into the regional and statewide transportation planning processes. The 2030 Regional Transportation Plan (RTP) was completed in cooperation with the I-70B Corridor Optimization Study and the results of the study have been carried forward into the 2030 RTP.

During the process of the I-70B Corridor Optimization Study, several significant, regional events that impact I-70B occurred. The *Riverside Parkway Study* was completed in April 2003 and the funding for this new roadway was approved by voters in November 2003. The study determined that congestion along I-70B will be reduced due to the new Riverside Parkway. A design-build project for Riverside Parkway is currently in the request for proposal stage.

29 Road was identified as the key north-south corridor to connect I-70 and US 50 based on the recommendations of the *North/South Corridor Study* (1996) and the *West Metro Transportation Study* (1999). The recommendations from these studies were included in the 2030 regional travel demand model. The recommendations on 29 Road include providing a new rail crossing, a new bridge crossing over the Colorado River, and an interchange at I-70. With this new continuous north-south connection, the regional transportation network will be improved.

I-70B is the backbone of the transportation system in the Grand Valley. Based on the analysis performed in this study, providing capacity improvements along I-70B will provide the most effective improvement to achieve transportation mobility in the Grand Valley. The timing of the I-70B Corridor Optimization Study is opportune with the Riverside Parkway and 29 Road improvements underway by the City of Grand Junction and Mesa County. Improvements to I-70B along with these other improvements provide the Grand Valley community with a greatly enhanced and efficient regional transportation system that will address long-range transportation mobility.

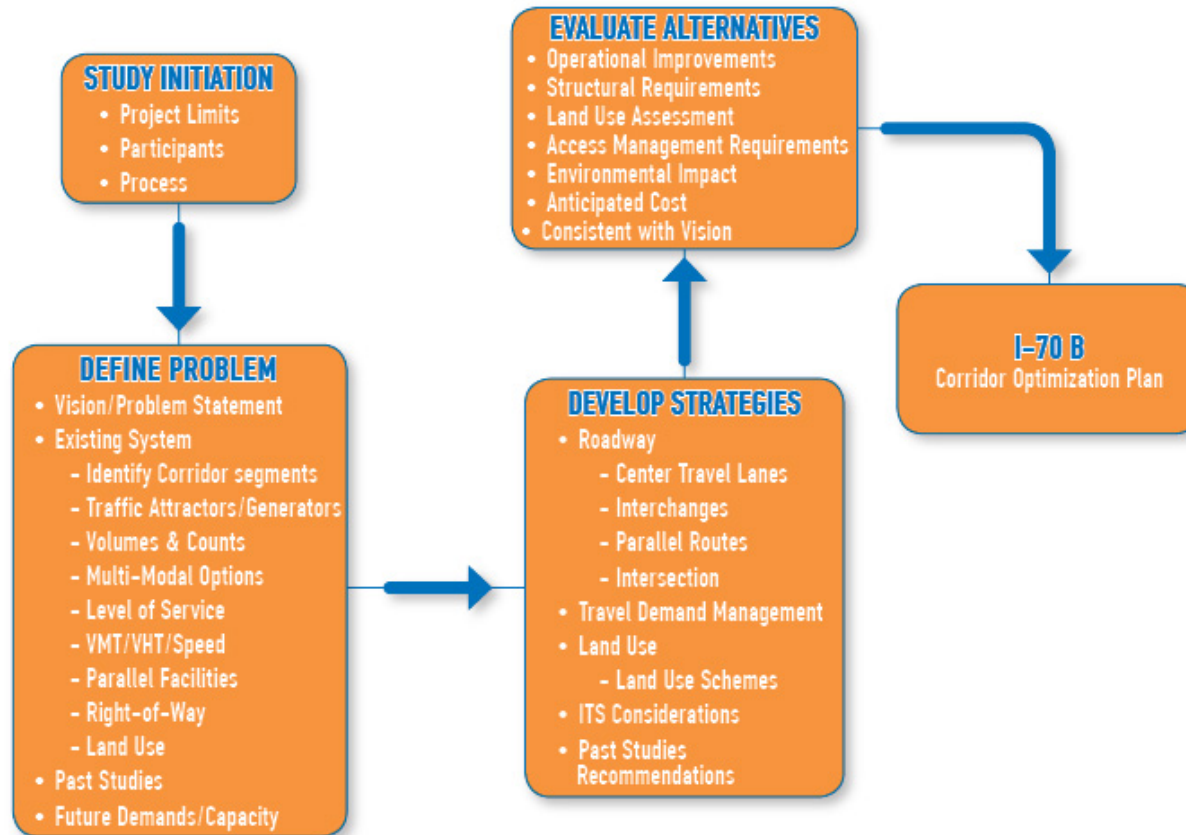
### 2.1 Purpose of Study

The main goal of this project was to develop a common understanding on the long-term vision of I-70B between CDOT, Mesa County and the City of Grand Junction. Consensus between these three groups was vital in order to achieve this goal. Throughout the process of the study, cooperation was reached with regards to the methods and results of how to best assess the options that address the issues along I-70B. The process for the I-70B Corridor Optimization Study is shown in **Figure 1**.

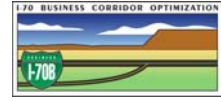


Figure 1 – I-70B Corridor Optimization Study Process

## I-70 Business Corridor Optimization Study







## 2.2 Definition of a “Corridor Optimization Study”

A corridor optimization study examines the transportation needs of the specified corridor along with the planned land use development and community values of the corridor. CDOT recently adopted this new technique to provide long-term visions for corridors throughout the state. The I-70B Corridor Optimization Study is the third study of its kind being completed in Colorado.

## 2.3 Study Participants

A project team was established with the members of the Grand Valley TAC. The TAC consists of staff representatives from:

- City of Grand Junction
- Mesa County
- Colorado Department of Transportation
- Grand Valley Transit
- City of Fruita
- City of Palisade
- Regional Transportation Planning Office

The TAC played a vital role in the I-70B Corridor Optimization Study. The study required cooperation from the various representatives of the TAC as the TAC became the key working group and the decision-making team for the study. It was agreed to use the TAC as the focal point for the study. An interactive process was developed within the TAC to ensure consensus was reached among the various organizations. For the duration of the study, the I-70B Corridor Optimization consultant team met with the TAC at most of their monthly meetings. The monthly TAC meetings provided an opportunity for the study team and members of the TAC to coordinate and collaborate on study issues, provide study updates, review work products, and answer and discuss process and study questions.

Collaborative efforts the TAC successfully completed include forming the I-70B Corridor Vision, developing alternatives that corresponded to the Vision, establishing key evaluation criteria based on the Vision, and evaluating the alternatives based on the established criteria. By working together and coming to consensus on various issues, the TAC developed key findings that will be brought forward into the Regional Planning Process.

Besides the TAC, the consultant team also met each month with CDOT, Mesa County, and the City of Grand Junction. This group was also a cooperative effort that approved direction and provided milestones throughout the process of the study.



## 2.4 Organization of this Report

The following sections of this report detail the current and future land use and transportation characteristics with the final section providing alternatives for the future demand of the corridor. Extensive work using the travel demand model was completed and is detailed in Appendix A. Twenty alternatives were developed and evaluated. The results from the model were used to help evaluate these alternatives and the graphics corresponding to the alternatives and the model results are in Appendix B and Appendix C. Appendix D contains the cost estimate assumptions and calculations.

## 3.0 STUDY CORRIDOR

The I-70B study corridor is shown in Figure 2.

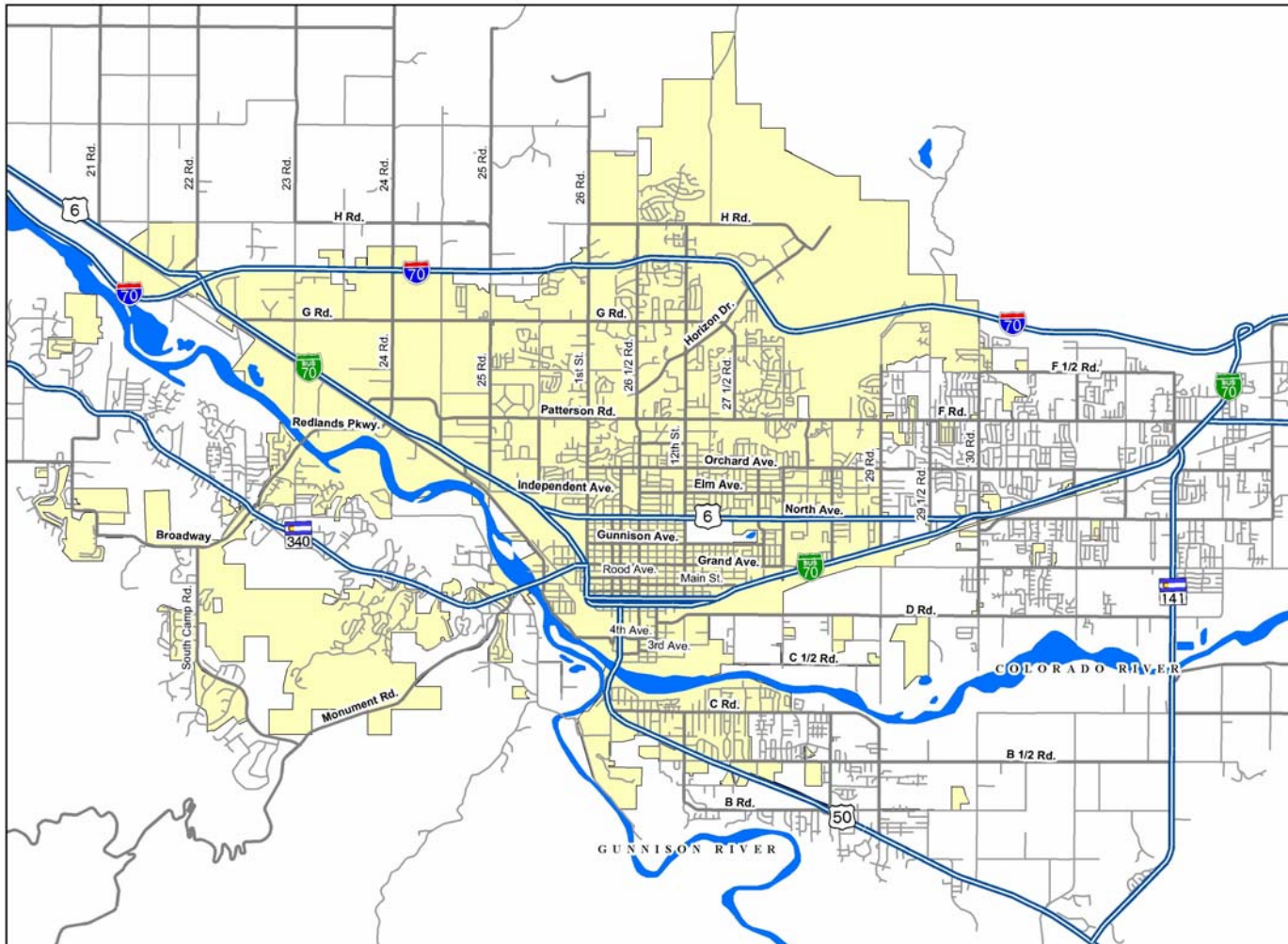
### 3.1 Corridor Location and Description of I-70 Business Loop

I-70B extends approximately 13.5 miles through Mesa County and the City of Grand Junction and provides access to most of the Grand Junction commercial and business areas. I-70B diverges from I-70 at Exit 26 and rejoins I-70 at Exit 37. I-70B links I-70 to US 50 and SH 141. **Figure 2** shows the location of I-70B. I-70B was initially constructed in the 1960's with four lanes, closely spaced frontage roads, and frequent driveways. This design does not meet the current standard for today's traffic and contributes to accidents and congestion related traffic delays. Local commercial growth has remained strong and traffic volumes along I-70B are steadily increasing. Several signalized intersections along the corridor are near capacity. In some areas there are numerous physical, environmental and social constraints to widening the roadway. The primary corridor issues include access, capacity and mobility. Other issues include frontage road controls, local arterials, transit, design and land use.

# I-70B Corridor Optimization Study



Figure 2 – I-70B Corridor Optimization Study Location



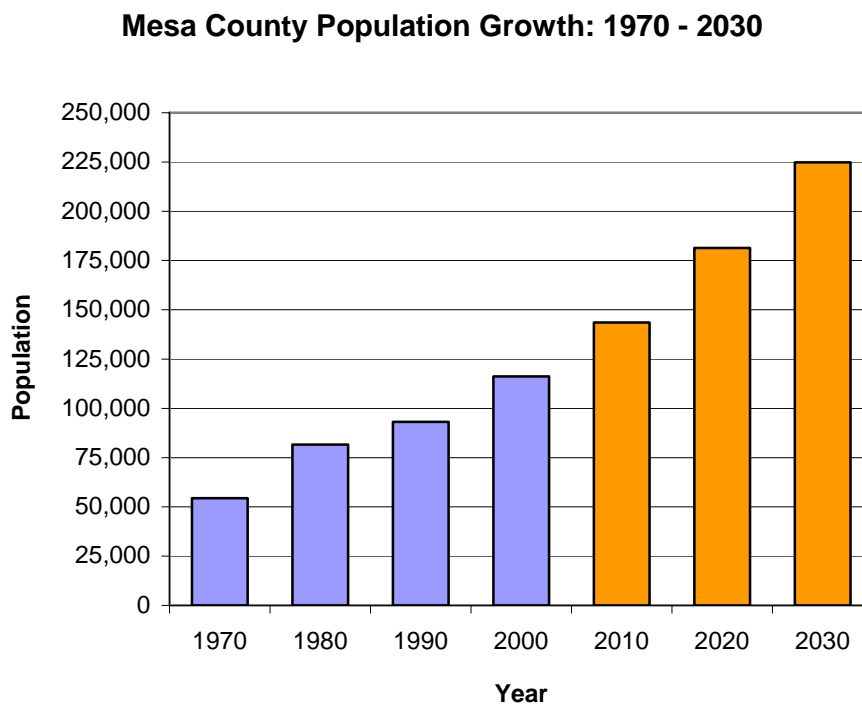


## 3.2 Corridor Land Use

Despite the recent economic downturn, Grand Junction and the surrounding regional communities have continued to display strong growth. The local and regional economy is based on destination-oriented recreation and growing retirement communities. As part of this growth, Grand Junction has evolved into a major regional commercial center.

The population of Grand Junction and Mesa County has grown steadily over the past 30 years and is expected to continue to do so over the next 30 years as well. Between 1970 and 2000 the population increase was approximately 114%. The projected population increase from the year 2000 to 2030 is 93%. **Figure 3** shows the population growth in Mesa County from 1970 to 2000 and forecasts from 2010 to 2030.

**Figure 3 – Mesa County Population Growth: 1970 – 2030**



Source: 1970 – 2000 Data: US Census

Source: 2010 – 2030 Data: Forecasts, CO Dept. of Local Affairs, Demography Section

At the western end of the I-70B corridor, the land uses around the I-70/US 6 interchange and along I-70B to approximately 22 ½ Road include mostly light industrial with some general retail and commercial services found directly adjacent to the interchange. Industrial uses of a slightly higher intensity are found around the intersection with 23 Road, with industrial uses found along the south side of I-70B and general retail and commercial services found along the north side of the road continuing from 23 Road southeast to approximately 24 ½ Road. From approximately 24 ½ Road to the entrance into the Central Business District at roughly 1<sup>st</sup> Street, both sides of I-



70B have been developed with retail and commercial uses, including the large retail developments found in the Mesa Mall and the nearby “big box” retail establishments.

From the intersection at 1<sup>st</sup> Street, south through the split into the one-way couplets, and east to approximately 12<sup>th</sup> Street, the land use remains primarily commercial, but with a development pattern consistent with a more historic grid pattern of the downtown area. Occasional civic, park, and residential uses are also found within this area. At 12<sup>th</sup> Street heading east to approximately 29 Road, commercial uses remain located along the north side of the corridor, with mixed commercial and light industrial found along the south side of the road. From 29 Road east to the end of the I-70B corridor at the Clifton interchange at I-70, the general land uses found along the corridor are clusters of neighborhood retail and commercial services found typically at the intersections of the major cross streets, such as 30 Road, 31 Road, and 32 Road.

### 3.3 Existing Traffic Characteristics

The geographic layout of Grand Junction is elongated in an east-west direction. Because of this, the higher volume roads within the city run east-west. There is a strong commuter-oriented travel pattern during the morning and evening hours. The majority of traffic in the morning travels westbound toward the mall area. The evening peak hour reverses to westbound. There are high directional splits on these roads during those periods, though the evening peak directional splits tend to flatten slightly. Patterson Road, North Avenue and Grand Avenue are the major east-west travel ways. The Ute and Pitkin one-way pairs also serve east-west traffic as part of I-70B. I-70B itself attracts and collects a large percentage of this east-west traffic as departure and terminus points for east-west traffic.

#### *Major Traffic Generators*

Significant east-west traffic flow patterns have developed due to the location of developments in Mesa County. Most of the residential areas are located in the eastern portion of the County and the major commercial development is located in the western half of the County. During the AM peak period there is heavy traffic flow from the east residential areas to the west commercial areas. In the PM peak period the reverse, west commercial areas to east residential areas, is the more congested direction of travel. The predominant roadways that carry this heavy east-west volume of traffic include Patterson Road, North Avenue and I-70B.

By far, the largest single traffic generator is the Mesa Mall area. Regional accessibility to and from the mall area is served from three directions. From the east, westbound traffic uses I-70, connecting to 24 Road. From the west, eastbound traffic uses either I-70 and 24 Road, or I-70 and I-70B. Traffic to and from the south via US 50 is required to use Ute Avenue and Pitkin Avenue and I-70B. Local traffic from the residential areas in the northeast section of the valley uses Patterson Road. This traffic has the most significant effect on city traffic on the whole, and is beginning to overtax the roadway system in this area.

The downtown area also generates a significant amount of employment and business trips. Because Grand Junction is a regional commercial center, a large portion of traffic is attracted



from outside the city area. Other significant regional traffic generators include Mesa College, St. Mary's Hospital, and Walker Field Airport.

## *I-70B Corridor Segments*

When I-70B was first conceived and built, its purpose was primarily to serve as the main commercial entrance into town and after the completion of I-70 it also took on the role of serving pass-through traffic from I-70. The “vision” of I-70B was to serve travelers on I-70 by giving these motorists the opportunity to use visitor services in Grand Junction. While I-70B still serves this purpose, the changing internal dynamics of Grand Junction, along with the growth of the City as a major regional commercial attractor, has significantly altered the originally intended function of I-70B. **Figure 4** shows the areas of site generated traffic from the major attractors: the mall and downtown. Based on current conditions, there are basically three distinct sections of I-70B. These sections are also shown in **Figure 5**.

1. West Segment: I-70B from Exit 26 (I-70) to 1<sup>st</sup> Street/Grand Avenue Intersection  
This section is currently the highest traveled portion of I-70B. I-70B itself attracts and collects internal city traffic as departure and terminus points for east-west mall traffic. This section also serves mall traffic from US 50 and I-70 from the west. The Redlands area, east and north of downtown, also use this section of I-70B.
2. Central Segment: Downtown Area - 1<sup>st</sup> Street/Grand Avenue Intersection to 15<sup>th</sup> Street West of 5<sup>th</sup> Street carries US 50 traffic from the south to and from the mall area. East of 5<sup>th</sup> Street, traffic volumes fall off significantly.
3. East Segment: I-70B East of the Downtown Area to Exit 37 (I-70)  
This section predominantly carries local traffic. Traffic will probably increase proportionally from development to the east. The east end of the Urban area also has high growth potential.



Figure 4 – Grand Junction Major Attractor Site Generated Traffic

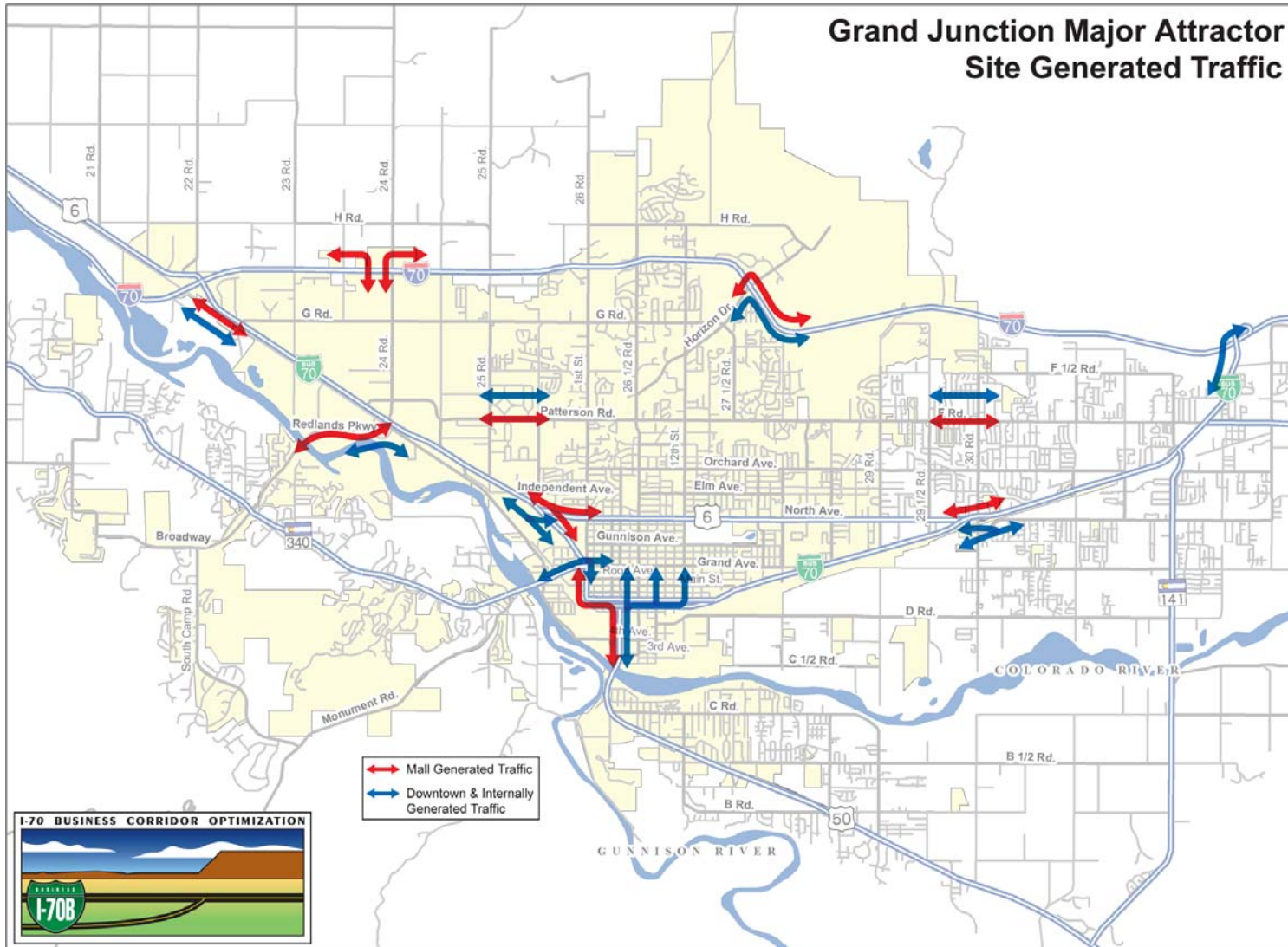
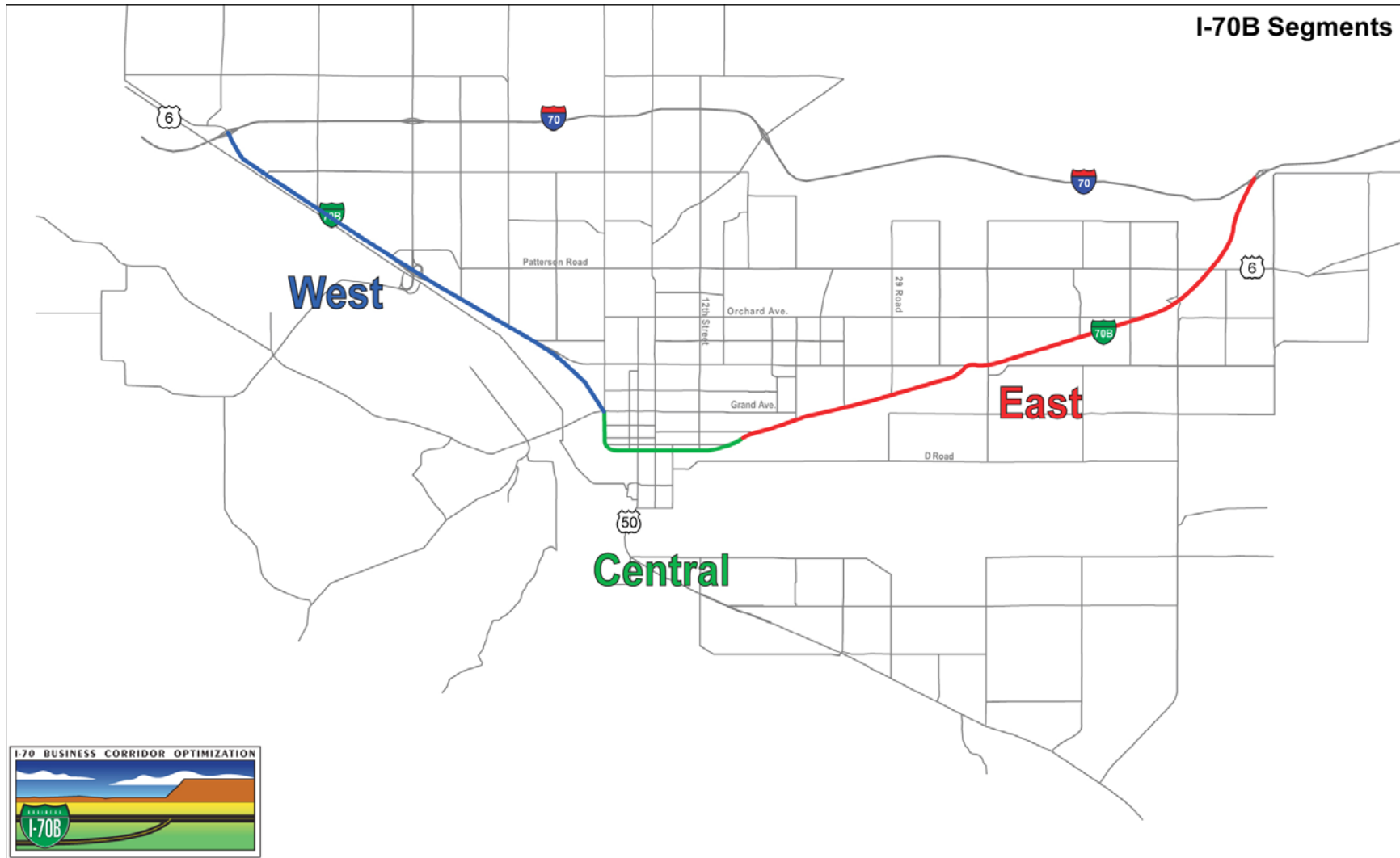




Figure 5 – I-70B Segments







## 3.4 Past Studies

Several studies have been completed or are near completion for various segments of I-70B. The results and recommendations from these studies have been examined to help ensure consistency in determining the I-70B Corridor Optimization Study recommendation.

### *F ½ Area Corridor Study – Michael Baker, Study in Progress*

A new transportation corridor study is currently underway to look at future traffic issues in the area between Patterson Road and G Road, from Highway 6 and 50 to Horizon Drive. The Study looked at the possibilities of a new roadway to handle the traffic demands of the 24 Road area as it builds out in the future. The present number of lanes on Patterson Road, G Road, Horizon Drive, and 24 Road will not handle all the new traffic. The previous 24 Road Transportation Study called for another corridor to serve the area, and identified the F ½ Road alignment as a possibility for a future roadway. The objectives of the F ½ Area Corridor Study are to:

- Evaluate future conditions in this area to identify deficiencies
- Communicate with those affected by a new roadway or widening of existing roadways
- Identify and evaluate viable roadway improvements
- Minimize impacts while considering the cost of implementation
- Prepare mapping necessary to preserve property needed for implementation

### *Riverside Parkway Study – Kimley-Horn & Associates, 2003*

Riverside Parkway provides the missing link to a beltway concept envisioned by the City of Grand Junction. Much of the justification for this study comes from information contained in the *West Metro Transportation Study*. This parkway will relieve traffic congestion on I-70B from 25 Road to Grand Avenue. Direct impacts to I-70B include:

- Rebuilding the 25 Road/I-70B intersection
- Possible rebuilding of the 24 Road/I-70B intersection
- Construction of 25 Road overpass at Independent Avenue/railroad

### *Westside Downtown Redevelopment Study (Draft) – Ciavonne & Associates, Fehr & Peers Associates, and Centre Sky Architecture, 2003*

This study is a joint project of the City of Grand Junction and Mesa County. The purpose is to examine the feasibility and design of the Grand Junction Historic Depot site as an inter-modal transportation plaza as well as examine traffic issues and possible redevelopment of the area.

# I-70B Corridor Optimization Study



The study recommends converting Ute Avenue and Pitkin Avenue (I-70B downtown) from three-lane, one-way streets to four-lane, two-way streets. Ute Avenue would become a local street and several intersections along Ute Avenue would be modified.

## *Clifton Transportation Study – Michael Baker, 2002*

Mesa County and CDOT jointly funded an I-70B Access Plan from 30 Road to I-70 at Clifton. The committed improvement for the study area at the time of the report submittal was to reconstruct a five-lane section of 30 Road (from I-70B to E Road) under the railroad and reconfigure the intersection at I-70B.

The following recommendations were made:

- Peachtree Center Access Driveways (on I-70B)  
Replace the two existing unsignalized access points with one new signalized access to I-70B. The corridor signal progression will need to be re-optimized.
- I-70B & 31 Road Intersection  
Install a new traffic signal at the existing location or construct a new segment between I-70B and E ½ Road to the east of the existing location. The new segment would be signalized at I-70B and eventually continue north to F Road eliminating the current offset intersection.
- I-70B & 31 ½ Road Intersection  
Remove the roadway segment between I-70B & E ½ Road and construct a new connection between E ½ Road and I-70B at either High School Driveway or 31 Road.
- I-70B & 30 Road Intersection  
Add a third WB thru lane at the intersection. The lane drop location should be determined during the design phase of the project.
- I-70B & 32 Road Intersection  
Add a second NB left turn lane (not a shared thru lane, no split signal phasing)
- Hwy 141 (32 Road) from I-70B to D ½ Road  
Widen to a seven lane section (five lane existing).

## *Access Management Plan (Preliminary Draft) – PBSJ, 2003*

Grand Junction and CDOT have jointly initiated an Access Management Plan for I-70 B from 24 Road to West of the 1<sup>st</sup> Street and Grand Avenue intersection. The purpose of the Access Management Plan is to provide CDOT and the City of Grand Junction with guidance on access permit applications.

# I-70B Corridor Optimization Study



No time line has been established for the recommended improvements which consist of a variety of access changes along I-70B between 24 Road and the 1<sup>st</sup> Street/Grand Avenue intersection. This report is currently in draft form and additional work needs to be completed before the plan is adopted.

## *Grand Mesa Center Traffic Impact Study – Hook Engineering, 2001*

This study is considered outdated. The study was done in March 2001. Since then, the Access Management Plan by PBS&J has provided new and more up to date information.

## *West Metro Transportation Study - Fehr & Peers Associates, 1999*

The recommendations were evaluated from a number of alternatives and considered traffic operations, community values, and cost/benefit. Community values were heavily weighted in the evaluation. Study Recommendations with direct influences to the I-70B corridor include:

- Riverside Bypass- Construct new alignment along rail tracks and river. Immediate influence to I-70B between 24 Road and Grand Avenue. This bypass is also projected to remove a fair amount of traffic from the downtown area.
- Improve 24 Road Interchange- Reconfigure and widen existing interchange. Potential increase in traffic at the 24 Road/I-70B intersection.
- New Interchange at 29 Road- Build new interchange with I-70. Potential increase in traffic at the 29 Road/I-70B intersection.
- New Rail Crossing at 29 Road- Span the railroad tracks at 29 Road. Potential increase in traffic at the 29 Road/I-70B intersection.

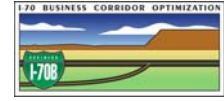
## *Mesa County 2020 Regional Transportation Plan*

The most significant proposed projects identified in the Mesa County 2020 Regional Transportation Plan that may have an impact on the I-70B corridor include:

- New Riverside Bypass – Minor Arterial  

This new roadway from 25 Road, along River Road to 5<sup>th</sup> Street and ending at the intersection of Noland Avenue and 4<sup>th</sup> Avenue will relieve congestion along I-70B.
- Construct new railroad viaduct at 29 Road over the railroad from I-70B to D1/2 Road  

This viaduct would provide better access and circulation to adjacent properties and partially relieve congestion on South 9<sup>th</sup> Street.
- Construct the North/South Corridor project in stages from I-70 to US 50



The North/South Study determined that a new north-south highway would be warranted by 2015. The recommendations included constructing a new Colorado River bridge, a new railroad viaduct over the railroad from I-70B to D ½ Road, and a new interchange at I-70 and 29 Road.

- Encourage the use of I-70, 32 Road (SH 141), US 50 as an alternative circumferential truck route rather than I-70B
- Reconstruct intersections on existing arterial and collector roadways

This includes the construction of turn lanes and geometric improvements.

- Adopt specific access management standards for all new arterial and collector highways
- Reconstruct intersections along I-70B and US 6 & 50 to accommodate frontage roads
- Sidewalk/Pedestrian facility improvements

Priority is given to school walking routes and then transit stop routes.

- Redlands Parkway from SH 340 to the Colorado River

This segment is widened to 4 lanes and a new pedestrian facility on the Colorado River Bridge is needed due to the roadway widening.

- SH 340 from Ridges Boulevard to Redlands Parkway

This segment is widened to accommodate a two-way left-turn lane and additional thru lanes as warranted.

- 1<sup>st</sup> Street/ Grand Avenue (SH 340/I-70B) Intersection

This intersection is reconstructed to add capacity.

- SH 6 (F Road) from I-70B to 33 Road

This segment is reconstructed and additional thru lanes are added.

- I-70B – 1<sup>st</sup> Street to 12<sup>th</sup> Street

This segment is reconstructed to add turn lanes and auxiliary lanes.



## *Grand Valley Circulation Plan*

**Figure 6** shows the Grand Valley Circulation Plan. Streets serve two main functions: access and mobility. One way to look at the proposed Plan is to view it as the “getting around town” map. This implies mobility is the primary function, as it should be for those streets classified as principal and minor arterials. Access to these streets needs to be managed and limited so that the major function of moving traffic is preserved. Collector streets provide both access and circulation and serve to collect as well as distribute traffic within the urban area. The principal arterial streets identified by the plan are Patterson Road, I-70B, Redlands Parkway, US 50 and SH 141, SH 340 and 29 Road. Traditionally, streets which are designated a particular classification will look like the adopted cross-section and will carry the traffic volumes typically associated with that cross-section. However, several streets on the network may function as classified yet not look like the standard street design. In future tasks, The Plan may identify “constrained corridors” in recognition of street segments that may not be able to conform to adopted street standards. The constrained designation will be considered where environmental or cultural resources must be preserved, such as the historic district, wetlands, or buildings, or where acquisition of right of way would destroy the existing character of the neighborhood.

The Plan will serve as a guide and reference for decision-makers, staff, developers and the public as land use and capital improvement decisions are made.

## 3.5 Multi-Modal Overview

The I-70B Corridor Optimization Study examined the multi-modal options along I-70B which were extremely limited. The multi-modal options however are an important factor in the corridor and will be reexamined in future planning processes. This section is an overview of the existing and planned multi-modal options in the Grand Valley.

Pedestrian and bicycle facilities along I-70B are limited. The Urban Trails Master Plan (UTMP) was updated in 2001 and is a planning document that shows the various bicycle and pedestrian routes needed in Mesa County. The UTMP is shown in **Figure 7**. As seen in the UTMP, the bicycle and pedestrian routes planned along I-70B are also limited. Independent Avenue is identified as a bike route that crosses I-70B and parallels the highway. A new pathway was constructed with the Rimrock Marketplace along the I-70B frontage that will connect with W. Independent Avenue and to 25 1/2 Road. I-70B crossings are identified on the plan at 24 Road, 25 Road, 29 Road, 30 Road and 31 1/2 Road. The numerous access points and heavy traffic volumes along I-70B do not provide a pedestrian and bicycle friendly environment. Both I-70B and the railroad are barriers to bicycle and pedestrian travel, but the identified crossings serve as access to and from the Riverfront Trail System.

Transit service was initiated in 2000 and is mostly used by transit-dependent riders. The Grand Valley has three types of transit services: fixed route, dial-a-ride, and paratransit. There are eleven fixed routes that serve Grand Junction, Fruita, and Palisade and over 500,000 riders per year use this service. The routes are shown in **Figure 8**. This fixed transit services operating along I-70B include:

# I-70B Corridor Optimization Study



- Routes 5A and 5B Downtown (Plum Route) run along Ute Avenue and Pitkin Avenue and serve the Grand Junction downtown area
- Route 8 Fruita (Orange Route) travels along I-70B and US 6 from Mesa Mall to Fruita
- Route 9 North Avenue (Yellow Route) runs along I-70B from 32 Road to North Avenue

The dial-a-ride service can be used by passengers outside of the fixed route system; however, users must typically call two hours in advance. The paratransit service is for individuals that qualify according to the American Disability Act.

The *Mesa County Transit Element* was completed in August 2003. The elements presented in this document will be incorporated in the 2030 RTP. The plan identified the need for longer operating hours and more frequent service on existing routes. No new routes are planned to operate along I-70B. One of the projects from the Preferred Plan of the *Mesa County Transit Element* is the revision of Routes 5A and 5B (Downtown Route) to serve Mesa Mall. This revised route may provide new transit service along I-70B between downtown Grand Junction and Mesa Mall.

Figure 6 – Grand Valley Circulation Plan

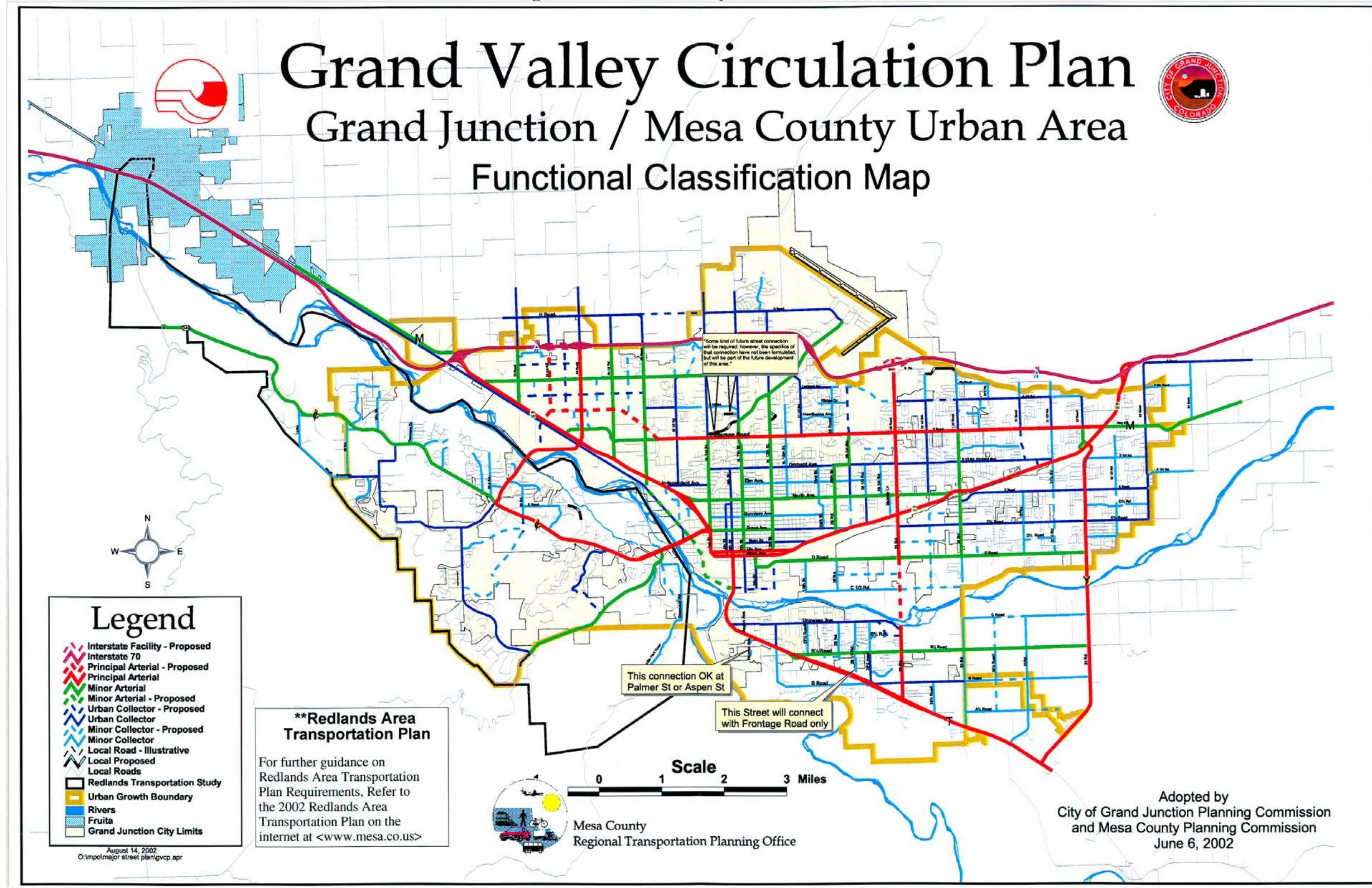


Figure 7 – Urban Trails Master Plan

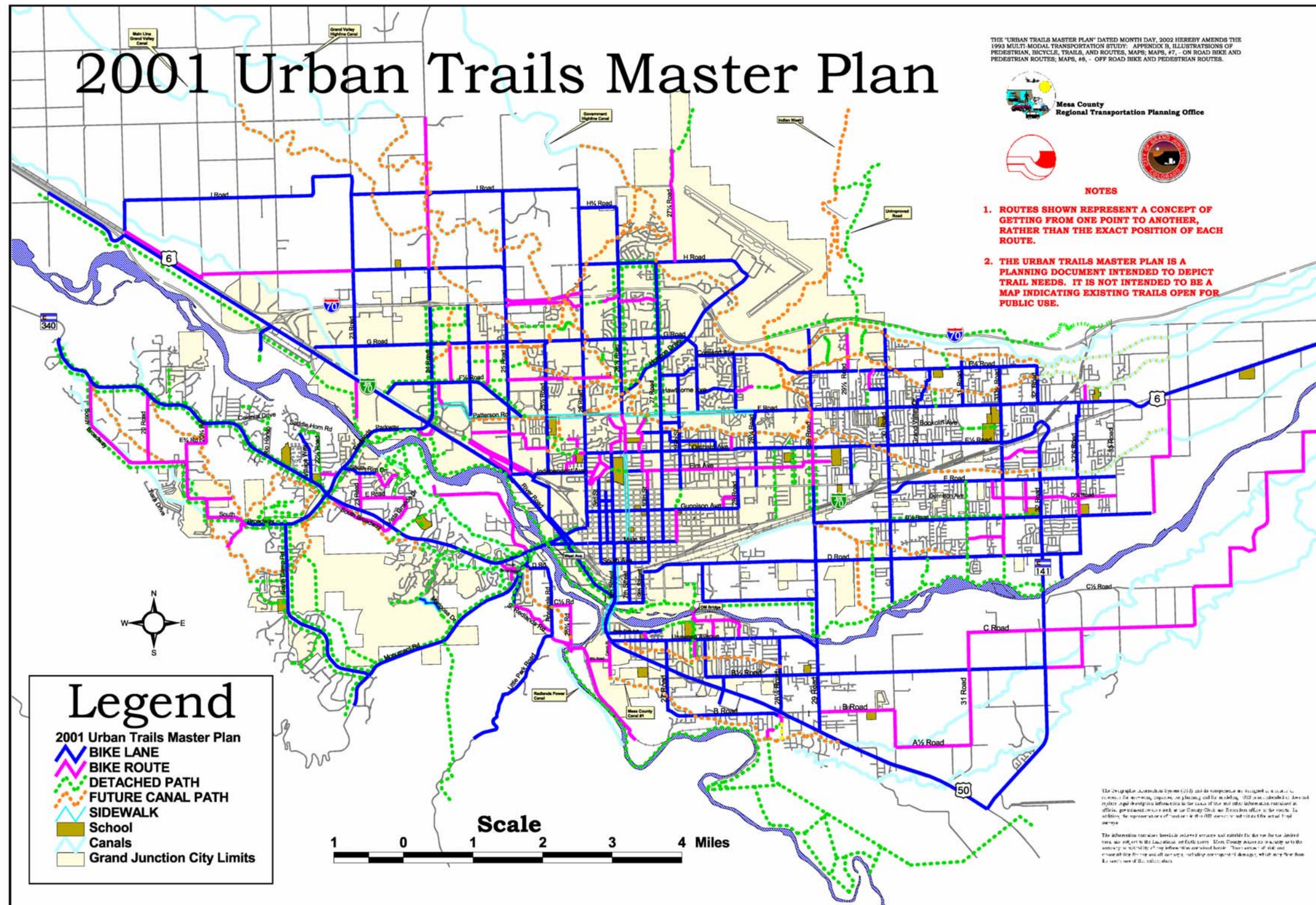
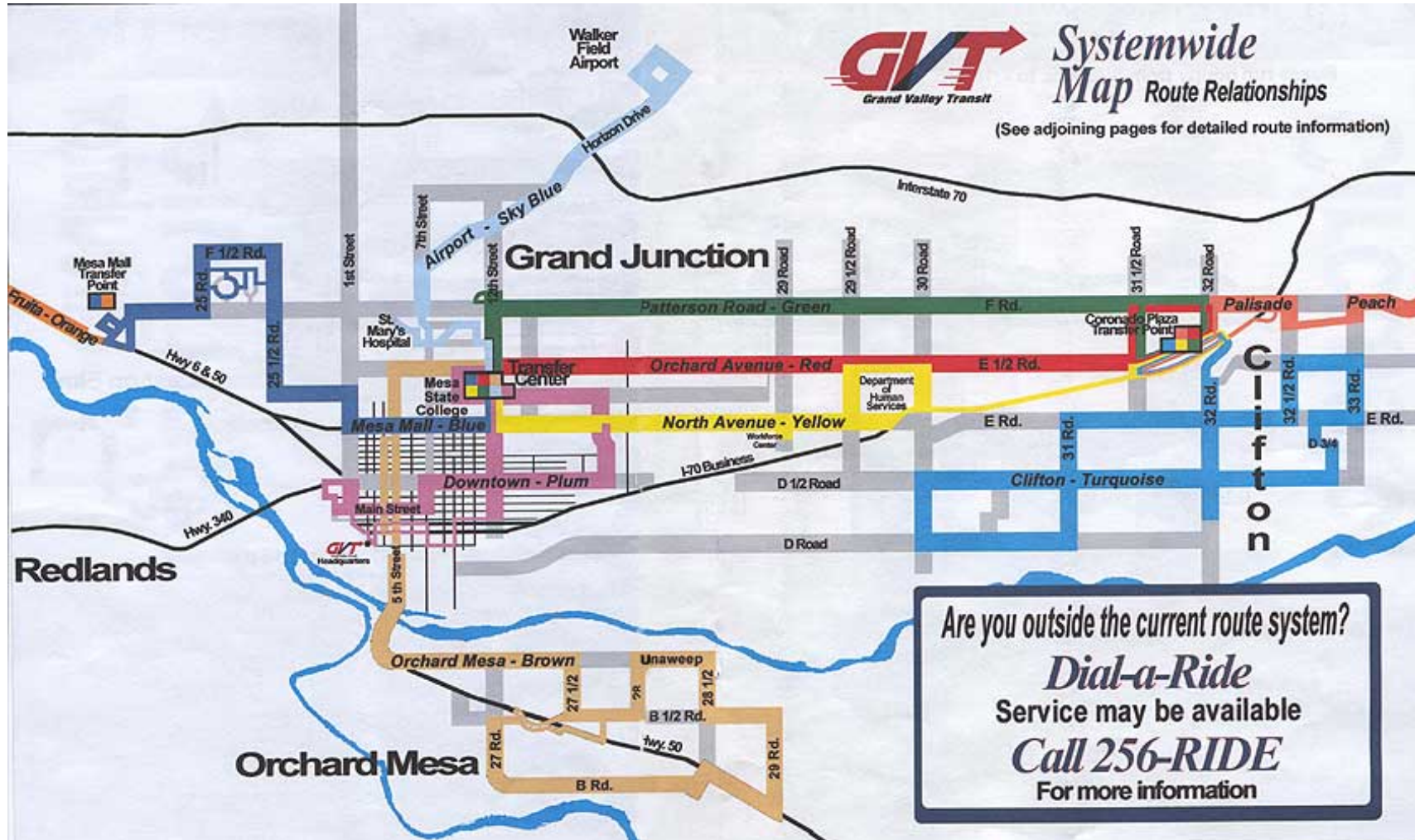






Figure 8 – Grand Valley Transit Routes





## 3.6 Corridor Vision

The TAC developed a vision for the I-70B Corridor Optimization Study. The Corridor Vision is the building block of the entire study and encompasses the perspectives of the project team members. The corridor priority for the TAC to consider was to optimize mobility, using safety and system quality as a subset of this priority.

The I-70B Corridor Optimization Study Vision is as follows:

- **Provides an important link in the regional, state, and federal highway system**  
Provide I-70B with the ability to efficiently support regional pass-through traffic, along with regional commercial truck traffic, in support of interstate and intra-state travel.
- **Remains a critical element in the local transportation system**  
Ensure I-70B operates and relates acceptably within the city street system hierarchy. Provide I-70B the ability to efficiently offer local mobility in a multi-modal environment. This would include provision for efficient operation of local transit, offer bicycle paths as part of the city's trail system, and provide a safe pedestrian environment.
- **Serves as an important regional commercial corridor**  
Provide I-70B with the ability to efficiently serve regional traffic to and from important commercial centers, such as the Mall area and downtown. Provide the roadway with the ability to safely and efficiently access commercial properties without compromising I-70B operational efficiency.
- **Provides safe and reasonable access with efficient traffic flows**  
Provide all of the desirable elements of a major arterial. This would include provision for an uninterrupted flow of traffic, with the ability to move high volumes of traffic with a high level of service and minimum side street delays.

In order to provide operational efficiency, the roadway would include features such as adequate roadway width, proper channelization of intersection traffic, high signal progression efficiency (with proper signal spacing), and provision of adequate gaps in traffic for unsignalized approaches.

Provide supporting roadways integral to I-70B that allow efficient access to major traffic generators.

Provide access control in accordance with CDOT's access code as a key element of safety and improved roadway operation without compromising the viability of commercial activities. Provide clear and adequate signage and adequate roadway lighting.



- **Provides gateway access into and through the City center**

Provide I-70B with the appropriate treatments and features that link the city's history and heritage. Provide distinctive features such as landmarks, arches, and other significant treatments that welcome the visitor into the city.

Provide distinctive roadway applications such as wide landscaped medians and a low speed, pedestrian friendly environment within the downtown area.

Provide a roadway that serves and is consistent with existing and future land use activity.

## 4.0 2030 LAND USE AND TRANSPORTATION FORECASTS

The regional travel demand modeling process developed into the largest component of the study. The model went through many changes and variations during the length of the I-70B Corridor Optimization Study because of the transition from MINUTP to TransCAD and the update from year 2025 to year 2030 projections. After several meetings and reviews with the TAC, the I-70B Corridor Optimization Study had a credible, validated travel demand model.

### 4.1 Land Use and Network Updates

One of the first tests of the study's interactive process began with examining the regional travel demand model to ensure the model produced reasonable results as well as reflected financially realistic future improvements. Several updates were made to the regional model based on agreements made by the TAC.

There were several aspects of the model in question. The TAC cooperated and acted as a decision-making team in order to reach a consensus with modeling issues. The TAC made the following decisions regarding the 2030 model:

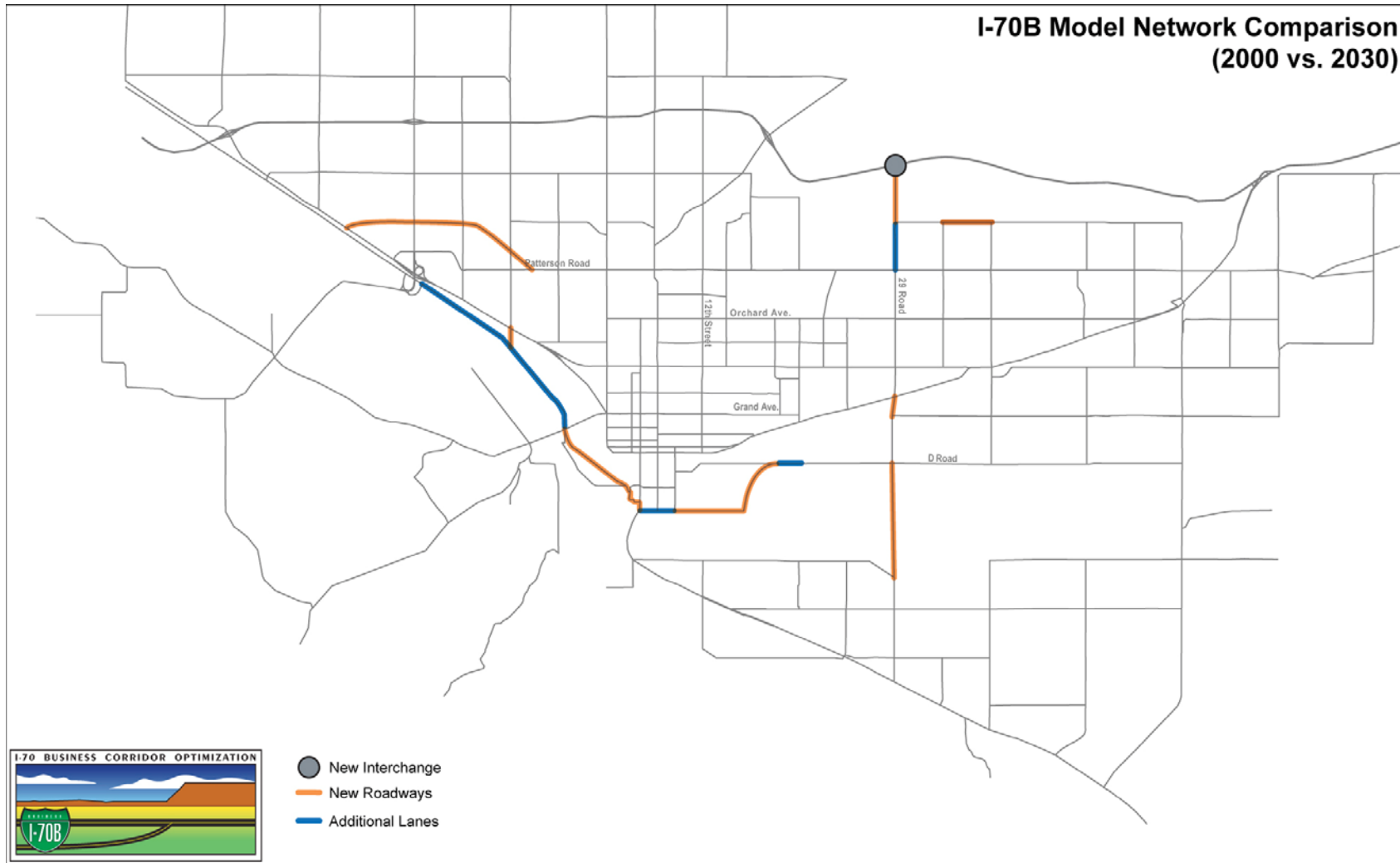
- Include the F1/2 Parkway extension from Patterson Road to I-70B
- Include the I-70/29 Road Interchange
- Include 29 Road as a continuous, four-lane facility from I-70 to US 50
- Apply an annual growth factor of 2.5% for external to external trips on I-70

Two regionally important events occurred during the span of the study. The first event was the completion of an extensive 2030 socioeconomic and land use update by the City of Grand Junction and Mesa County Planning Departments. The second event was the approval of the Riverside Parkway funding by voters in Grand Junction. These events enabled the study to use the best available data in order to provide the best possible results.

The 2030 network decisions made by the TAC are shown in **Figure 9**.



Figure 9 – I-70B 2030 Model





## 4.2 2030 Travel Demand Model/Forecasts

Mesa County in its role as the Regional Transportation Planning Organization provided URS with the 1997 and 2025 MINUTP models. These models were in the process of being converted from MINUTP to TransCAD. The models were updated to year 2000 and 2030 models after the land use updates described in the previous section. The final step in the modeling process involved expanding the model to include the City of Fruita. Once the expansion was complete, the I-70B study had a credible 2030 model to use for the alternatives development and evaluation. (Detailed information regarding the 2000 and 2030 model validation process and updates can be found in Appendix A).

The 2030 regional travel demand model was used to identify problems and to develop and evaluate alternatives. Average daily traffic (ADT) volumes and volume to capacity ratios in the 2000 and 2030 models were examined along I-70B and other parallel facilities: I-70, Patterson Road, and SH 6. This information is displayed in **Figure 10**. There were several reasons for this analysis such as:

- confirming that the 2000 ADT's reported from the model were not greater than the 2030 ADT's
- ensuring that the volumes reported are logical (i.e. the 2000 modeled volumes are comparable to existing counts)
- identifying segments that may need capacity improvements
- developing alternatives on I-70B and the other parallel facilities to address these possible problem segments

The AM and PM peak hour volumes and levels of service (LOS) for the 2000 and 2030 models were also examined and are shown in Appendix C. This data provided information to help identify problem locations during the heavily congested periods of the day and develop alternatives to address these problems.

During the process of developing alternatives, I-70 was looked at as a possible alternative to help relieve congestion on I-70B since it is a parallel route to I-70B. However, there were concerns about developing alternatives on I-70 that would increase local trips on I-70. After calculating the local traffic use on I-70 from the 2000 and 2030 models, it was determined that a significant amount of local traffic already uses I-70 as shown in **Figure 11** and therefore examining alternatives that may increase I-70 traffic would be acceptable for this project.

The vehicle miles traveled (VMT), vehicle hours traveled (VHT), and average speed were obtained from the 2030 model for comparison purposes during the alternatives evaluation process. The model was also used to examine and compare the volumes and LOS on I-70B as a result of each alternative. This data is presented in the next section, 'DEVELOPMENT OF ALTERNATIVES'.



Figure 10 – I-70B Segment Analysis

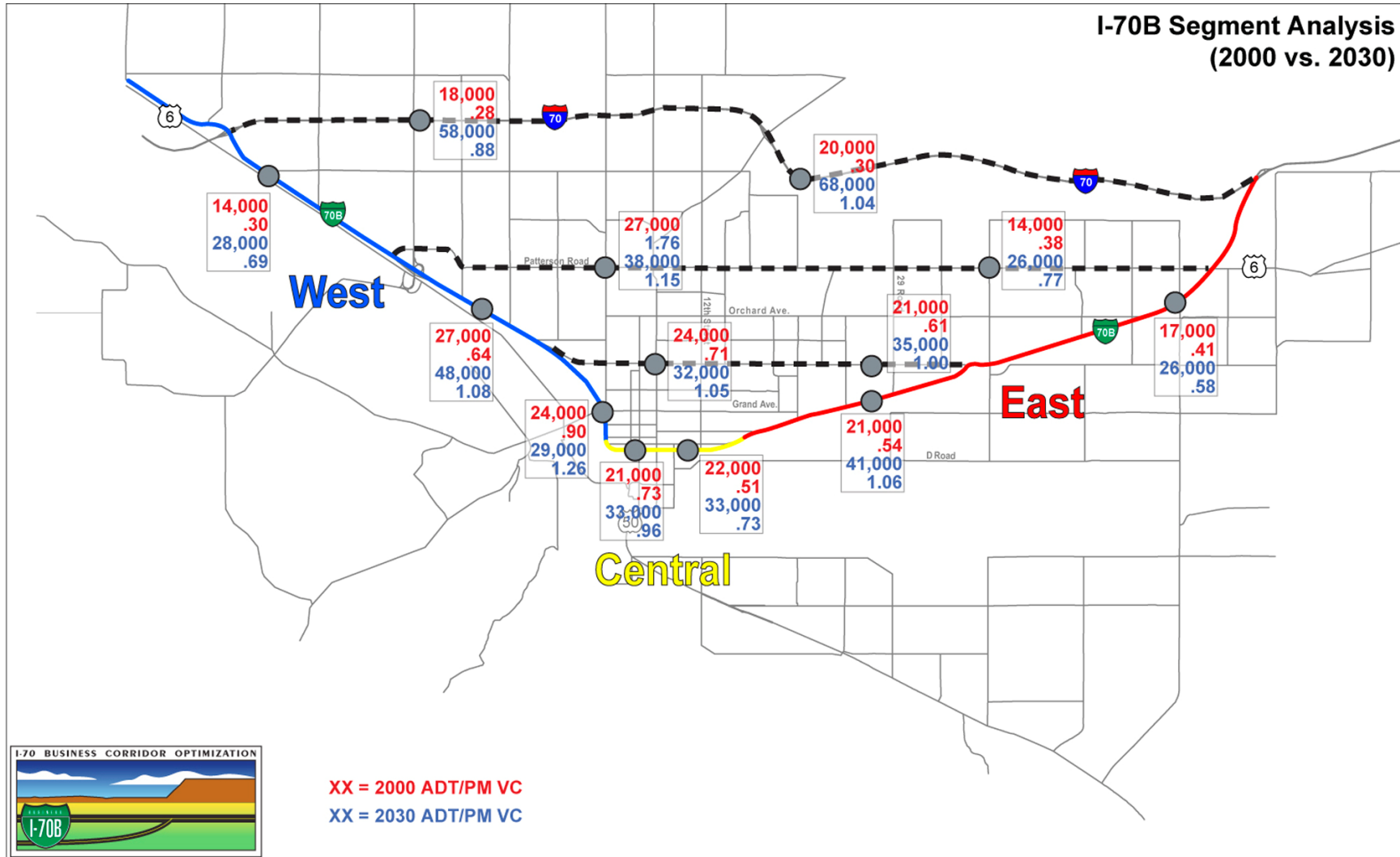
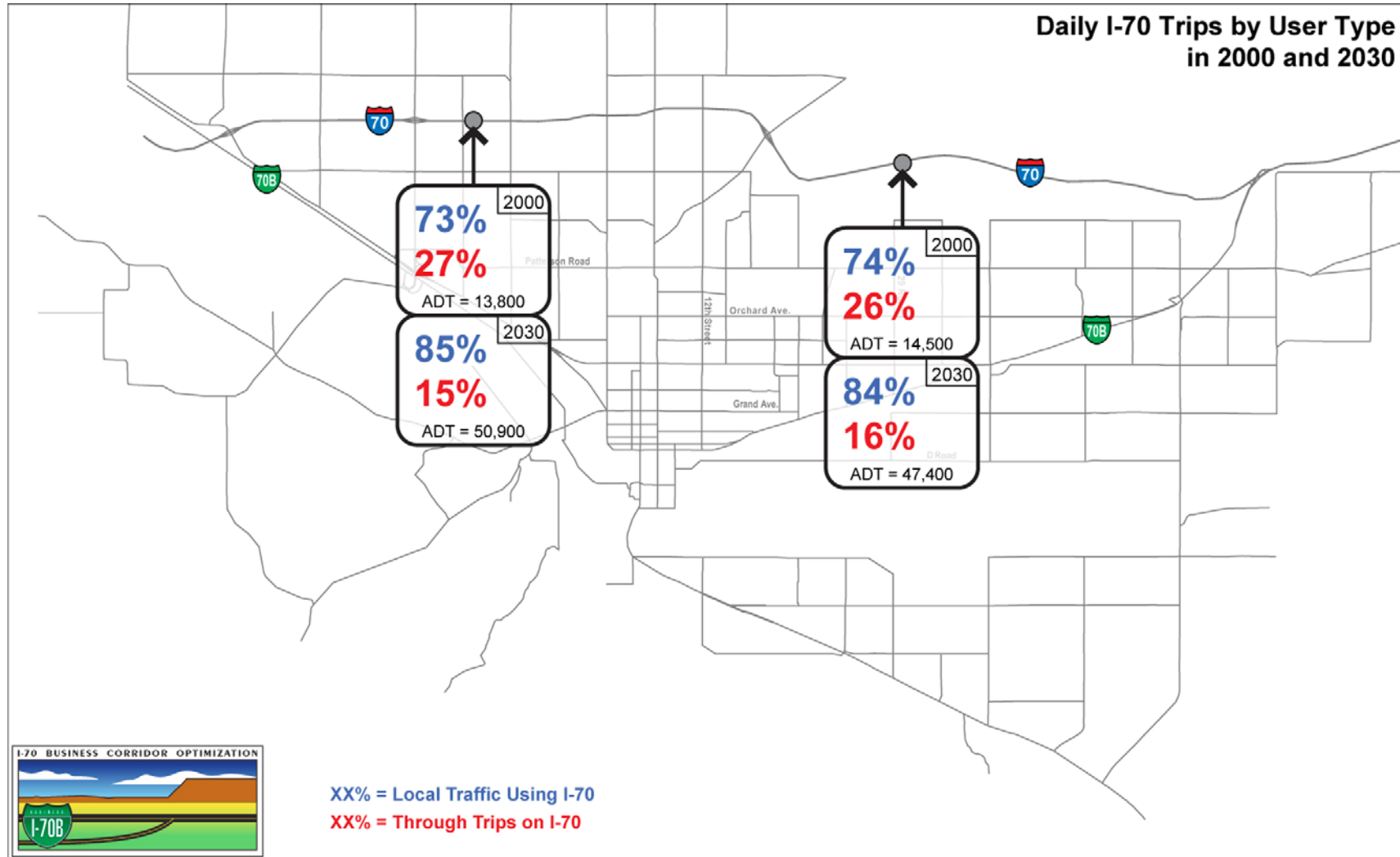




Figure 11 – Daily I-70 Trips by User Type





## 5.0 DEVELOPMENT OF ALTERNATIVES

The purpose of developing alternatives for this study was not to choose preferred projects but to determine the possible impacts associated with each alternative and to understand the relationship of I-70B to other regional roadways.

Alternatives were developed based on the established criteria and identified operational deficiencies. Twenty concept alternatives were developed and evaluated.

### 5.1 Evaluation Criteria

Evaluation criteria were established in order to develop and evaluate the alternatives. To begin this process, the TAC referred to the I-70B Vision asking the following questions from each vision statement.

- **Provides an important link in the regional, state, and federal highway system**
  1. How does I-70B currently function within the overall regional highway system?
  2. What are the current regional commercial hauler travel patterns?
  3. How has its function changed over the years since its inception?
  4. What is its anticipated future function within the overall regional highway system?
  5. Does the anticipated future function of I-70B warrant route re-designation or re-designation of any link in the system?
  6. How does this affect regional connectivity?
  
- **Remains a critical element in the local transportation system**
  1. How does I-70B relate to the overall city roadway system?
    - a) to major arterials?
    - b) to minor arterials?
    - c) to major collectors?
    - d) to minor collectors?
  2. How does this alternative serve and disperse traffic at major traffic generators?
  3. How does I-70B operate given its current functional classification?
  4. How does I-70B accommodate future local traffic patterns and demands (i.e. How does I-70B serve east-west travel and north-south travel)?
  5. Will I-70B be able to maintain its functional integrity in the future?
  6. Is it necessary that I-70B be able to maintain its functional integrity in the future?
  7. What types of modifications will be necessary in order for I-70B to maintain its current function in the future?





8. What are the current local commercial hauler travel patterns?
  9. How does existing multi-modal functions fit local travel patterns, and are there opportunities for improvements and expansion?
  10. Would multi-modal options be viable in relieving congestion on I-70B and how well would they work?
- **Serves as an important regional commercial corridor**
    1. How does I-70B now serve regional commercial traffic?
    2. How can I-70B serve regional commercial traffic in the future?
    3. How does I-70B relate to the local commercial environment?
    4. What are the economic factors involved with implementing this alternative within the local commercial environment?
  - **Provides safe and reasonable access with efficient traffic flows**
    1. What are the existing state highway access designations and are they appropriate for the conditions?
    2. How can these access designations being implemented?
    3. What steps can be taken to improve traffic flow and increase capacity?
      - a) Improve/implement signal coordination
      - b) Improve spacing of signalized intersections
      - c) Improve intersection lane geometry
      - d) Roadway widening
      - e) Raised medians
      - f) Reconfigure intersection geometry
      - g) Implement TOD signal timing plans (Traffic Responsive System)
      - h) Roadway/Intersection realignment
    4. What, if any, areas are in need of improvements based on the accident data?
  - **Provides gateway access into and through the City center**
    1. How can I-70B reflect local community values?
    2. What can be distinctive about the roadway that links its purpose and function to the city's identity?
    3. What are the environmental factors that need to be considered with any roadway improvements?
    4. How does this alternative relate to existing and future land use?



These questions formed the basis of the development and evaluation for each alternative as reflected in the evaluation matrix show in **Table 1**. How these questions are addressed for each of the alternatives will be a measurement of how well each alternative performs. The evaluation criteria reflect the needs of CDOT and the community while remaining consistent with the I-70B Corridor Vision.

## 5.2 Development of Alternatives

In order to develop the alternatives, the possible problem locations were identified. The operational deficiencies were determined based on the volume and LOS data from the 2030 model. The following deficiencies were identified along I-70B:

- I-70 West to G Road
- 23 Road to Patterson Road
- 24 ½ Road to North Avenue
- Grand Avenue to Ute Avenue
- Ute Avenue – 4<sup>th</sup> Street to Main Street (AM)
- Pitkin Avenue – 12th Street to Main Street (PM)
- Main Street to 29 Road
- North Avenue to 31 ½ Road (AM)
- North Avenue to 30 Road (PM)
- 32 Road to I-70 East

Deficiencies on other main road systems were identified as follows:

- I-70
  - 24 Road to I-70B East (AM)
  - 24 Road to 29 Road (PM)
- G Road
  - I-70B to 26 ½ Road
- Patterson Road
  - 25 ½ Road to 30 Road



## Table 1 – I-70B Corridor Optimization Study Evaluation Matrix

		
<b>I-70B CORRIDOR OPTIMIZATION STUDY SYSTEM WIDE ALTERNATIVES EVALUATION MATRIX</b>		
VISION STATEMENT	Alternatives	
<b><input type="checkbox"/> Provides Gateway Access into and through the City Center</b>		
How does this Alternative reflect local community values?		
	Strengthens Community Image - 2 -	
	Maintains Community Image - 1 -	
	Degrades Community Image - 0 -	
Does this alternative serve future land use activities?		
	Yes - 1 -	
	No - 0 -	
<b><input type="checkbox"/> Serves as an Important Regional Commercial Corridor</b>		
How well does this alternative serve regional commercial traffic now and in the future?		
	Improves - 2 -	
	Maintains Existing Level - 1 -	
	Degrades - 0 -	
How does this alternative relate to the local commercial/retail environment?		
	Improves Relationship - 2 -	
	Maintains Relationship - 1 -	
	Degrades Relationship - 0 -	
<b><input type="checkbox"/> Provides Safe and Reasonable Access with Efficient Traffic Flows</b>		
<b>Capacity Issues:</b>		
The Vehicle Miles Traveled (VMT) for this alternative:		
	Decreases - 2 -	
	Stays the Same - 1 -	
	Increases - 0 -	
The Vehicle Hours Traveled (VHT) for this alternative:		
	Decreases - 2 -	
	Stays the Same - 1 -	
	Increases - 0 -	
The Average Speed for this alternative:		
	Increases - 2 -	
	Stays the Same - 1 -	
	Decreases - 0 -	
Overall, Roadway Level of Service on I-70 B Is:		
	Improved - 2 -	
	Maintained - 1 -	
	Degraded - 0 -	
<b><input type="checkbox"/> Remains a Critical Element in the Local Transportation System</b>		
How does this alternative relate to the overall city roadway system?		
	Improves Relationship - 2 -	
	Maintains Relationship - 1 -	
	Degrades Relationship - 0 -	
How does this alternative accommodate future local traffic patterns and demands?		
	Improves - 2 -	
	Maintains Existing Level - 1 -	
	Degrades - 0 -	
<b><input type="checkbox"/> Provides an Important Link in the Regional, State, and Federal Highway System</b>		
How does this alternative function within the overall regional highway system?		
	Improves - 2 -	
	Maintains Existing Level - 1 -	
	Degrades - 0 -	
How does this alternative relate to regional roadway continuity?		
	Improves Relationship - 2 -	
	Maintains Relationship - 1 -	
	Degrades Relationship - 0 -	
<b>TOTAL SCORE</b>		
*These alternatives were revised based on 02/27/04 TAC meeting.		
<b>Provides Safe and Reasonable Access with Efficient Traffic Flows</b>		
<b>Transportation Demand Management (TDM) (Assumed to be common to all Alternatives)</b>		
Reduction in the number of signalized intersections		
Improved the spacing of signalized intersections		
Implementation of Signal Coordination		
Improved intersection lane geometry		
Implementation of TOD signal timing plans		



- North Avenue
  - I-70B West to I-70B East (AM)
  - 1<sup>st</sup> Street to 29 Road (PM)
- Riverside Parkway
  - 24 Road to D Road (AM)
  - 24 Road to US 50 (PM)
- SH 340
  - I-70B to 20 Road
- US 50
  - Ute Avenue to B ½ Road (AM)
  - Pitkin Avenue to Unaweep Avenue (PM)
- 24 Road
  - I-70 to I-70B; as Redlands Parkway from I-70B to SH 340 (AM)
  - I-70 to Patterson; as Redlands Parkway from north of SH 340 to SH 340 (PM)
- 29 Road
  - B ½ Road to I-70B

The identified deficiencies enabled the TAC to take the next step: develop the alternatives. The initial alternative concept on I-70B was to examine six lanes on I-70B from I-70 East (Exit 37) to I-70 West (Exit 26). Alternative concepts for other significant roadways within the study area included the 29 Road interchange at I-70 and the F 1/2 Parkway extension from 23 Road to I-70B. Strategic intersection improvements on I-70B included:

- 1<sup>st</sup> Street / Grand Avenue
- 24 Road / I-70B
- North Avenue / I-70B
- 32 Road / I-70B

These initial alternative concepts led to the development of twenty concept alternatives. These twenty alternatives are described below and shown in Appendix B.

- Alternative A – I-70 is widened from 4 lanes to 6 lanes between the I-70B interchanges.
- Alternative B – I-70 is widened from 4 lanes to 6 lanes between the I-70B interchange on the east and the 24 Road interchange.



- Alternative C – I-70 is widened from 4 lanes to 6 lanes between the 29 Road interchange and Horizon Drive.
- Alternative D – All of 29 Road is 4 lanes. The segments to be widened on 29 Road from 2 lanes to 4 lanes include: from the I-70 interchange to the north, between F Road and North Avenue, and between Unaweep Avenue and US 50.
- Alternative E – All of 29 Road and 32 Road is 4 lanes. The segments to be widened on 29 Road from 2 lanes to 4 lanes include: from the I-70 interchange to the north, between F Road and North Avenue, and between Unaweep Avenue and US 50. The segments to be widened on 32 Road from 2 lanes to 4 lanes are between D Road and US 50.
- Alternative F – Riverside Parkway is widened by one lane in each direction between 24 Road and D Road. The segments between 24 Road and 25 Road and between US 50 and D Road are widened from 2 lanes to 4 lanes. The segments between 25 Road and US 50 are widened from 4 lanes to 6 lanes.
- Alternative G – All of I-70B is 6 lanes. All segments are widened from 4 lanes to 6 lanes with the exception of Pitkin Avenue from 2nd Street to 12th Street and Ute Avenue from 5th Street to 12th Street which are currently 3-lane, one-way streets.
- Alternative H – I-70B is widened from 4 lanes to 6 lanes between the I-70 interchange on the west and the Pitkin Avenue/2nd Street intersection.
- Alternative I – 1st Street is cul-de-sacked just north of Grand Avenue. As a result, the intersection is decreased from a five-legged intersection to a four-legged intersection.
- Alternative J – US 50 is widened from 4 lanes to 6 lanes between Riverside Parkway and B ½ Road.
- Alternative K – This alternative is the recommendation of the Westside Downtown Plan. Ute Avenue and Pitkin Avenue are converted from one-way streets to two-way streets. Both have a total of 4 lanes. Ute Avenue is downgraded from a minor arterial to a collector.
- Alternative L – An interchange is added on I-70 at 25 Road and 25 Road is widened from 2 to 4 lanes between I-70 and Patterson Road.
- Alternative M – An interchange is added on I-70 at 26 Road and 26 Road is widened from 2 to 4 lanes between I-70 and Patterson Road.
- Alternative N – An interchange is added on I-70 at 30 Road. 30 Road is a 4-lane facility from I-70 to Patterson Road. (30 Road from I-70 to G Road is a new 4-lane facility and 30 Road from G Road to Patterson Road is an existing 2-lane facility that is widened to 4 lanes.)
- Alternative O – Remove proposed I-70 interchange at 29 Road. New connection added from the G Road/29 Road intersection over I-70 to Horizon Drive. An interchange is added on I-70 at 30 Road. 30 Road is a 4-lane facility from I-70 to Patterson Road. (30 Road from I-70 to G Road is a new 4-lane facility and 30 Road from G Road to Patterson Road is an existing 2-lane facility that is widened to 4 lanes.)



- Alternative P – Patterson Road (F Road) is increased from 4 lanes to 6 lanes between I-70B on the west and I-70B on the east.
- Alternative Q – This alternative is a combination of Alternatives A and G.
- Alternative R – This alternative is a combination of Alternatives G and J.
- Alternative S – This alternative is a combination of Alternatives H and J.
- Alternative T – A 4-lane connection is added between 12th Street and D Road over the railroad.

## 5.3 Analysis and Screening of Alternatives

Once the evaluation criteria were established and the alternatives were developed, the alternatives evaluation process could begin. The next cooperative task for the TAC was to complete the evaluation matrix for the twenty alternatives. The key data used to formulate the rankings included:

- 2030 VMT / VHT / Average Speed Data  
The VMT, VHT, and average speed data were obtained from the 2030 model for each alternative (see **Table 2**).
- 2030 AM Peak and PM Peak Volume and LOS Data  
Peak hour volume and LOS data were obtained from the 2030 model for each alternative (see Appendix C).
- Alternative Impacts  
The following impacts were rated high, medium or low: right of way, structural requirements, environmental, access management requirements, I-70B operational improvements, and anticipated cost. The impact results are shown in Appendix B. Planning level cost estimates were prepared and the results are presented in **Table 3**. (These are planning level cost estimates prepared with very little specific information and detail available for each alternative. They are useful for the purpose of comparing and screening the alternatives but are intended only to provide a rough comparative estimate of what might be the actual future cost of an alternative. Any future project initiated would have a more detailed project scope and specific information that would allow better estimation of costs for right-of-way, design, and construction.) For more information and assumptions used to calculate these estimates see Appendix D.
- Local knowledge and history  
As representatives of various organizations, TAC members were able to apply local knowledge as well as constituent needs and values.

The results of the alternatives evaluation are shown in **Table 4**.



**Table 2 - 2030 Vehicle Miles Traveled/Vehicle Hours Traveled/Average Speed System-Wide, 24-Hour Comparison**

Baseline	Vehicle Miles Traveled	Vehicle Hours Traveled	Average Speed
	4,054,200	128,400	31.6

Alternative	Vehicle Miles Traveled	Vehicle Hours Traveled	Average Speed
A	4,057,700	127,400	31.8
B	4,056,600	127,500	31.8
C	4,056,200	127,800	31.7
D	4,053,100	128,000	31.7
E	4,051,300	127,700	31.7
F	4,053,800	127,700	31.7
G	4,046,200	124,300	32.5
H	4,052,000	127,300	31.8
I	4,057,700	131,800	30.8
J	4,051,300	127,100	31.9
K	4,050,300	128,400	31.5
L	4,064,200	127,000	32.0
M	4,058,200	127,700	31.8
N	4,048,800	127,600	31.7
O	4,046,300	126,200	32.1
P	4,048,300	126,800	31.9
Q	4,046,100	122,400	33.1
R	4,027,400	120,900	33.3
S	4,028,800	122,000	33.0
T	4,054,100	127,800	31.7



**Table 3 – Alternative Cost Estimates**

<b>Alternative</b>	<b>Cost Estimate (\$ millions)</b>
A	83.2
B	70.8
C	15.7
D	5.0
E	14.3
F	6.8
G	44.2
H	17.8
I	0.7
J	5.9
K	10.1
L	12.0
M	12.0
N	12.3
O	16.2
P	18.3
Q	127.4
R	50.1
S	24.8
T	5.3



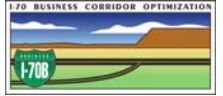


Table 4 – I-70B Corridor Optimization Study Evaluation Matrix

I-70B CORRIDOR OPTIMIZATION STUDY SYSTEM WIDE ALTERNATIVES EVALUATION MATRIX		A	B	C	D	E	F	G	H	I	J	K	L*	M*	N*	O*	P	Q	R*	S*	T
<b>VISION STATEMENT</b>																					
<input type="checkbox"/> Provides Gateway Access into and through the City Center																					
How does this Alternative reflect local community values?																					
Strengthens Community Image - 2 -																					
Maintains Community Image - 1 -																					
Degrades Community Image - 0 -																					
Does this alternative serve future land use activities?																					
Yes - 1 -																					
No - 0 -																					
<input type="checkbox"/> Serves as an Important Regional Commercial Corridor																					
How well does this alternative serve regional commercial traffic now and in the future?																					
Improves - 2 -																					
Maintains Existing Level - 1 -																					
Degrades - 0 -																					
How does this alternative relate to the local commercial/retail environment?																					
Improves Relationship - 2 -																					
Maintains Relationship - 1 -																					
Degrades Relationship - 0 -																					
<input type="checkbox"/> Provides Safe and Reasonable Access with Efficient Traffic Flows																					
<b>Capacity Issues:</b>																					
The Vehicle Miles Traveled (VMT) for this alternative:																					
Decreases - 2 -																					
Stays the Same - 1 -																					
Increases - 0 -																					
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<b>TOTAL SCORE</b>																					
16 16 14 11 13 11 22 18 1 15 11 10 9 9 11 22 22 22 16																					
*These alternatives were revised based on 02/27/04 TAC meeting.																					
<b>Provides Safe and Reasonable Access with Efficient Traffic Flows</b>																					
<b>Transportation Demand Management (TDM) (Assumed to be common to all Alternatives)</b>																					
Reduction in the number of signalized intersections																					
Improved the spacing of signalized intersections																					
Implementation of Signal Coordination																					
Improved intersection lane geometry																					
Implementation of TOD signal timing plans																					



## 6.0 FINDINGS

Listed below are key findings that have been developed throughout the course of this study. These findings were developed through discussions with study participants and analysis of study data sets. The findings reflect the long-range nature of I-70B and its relationship to the Grand Valley transportation network.

- I-70B along with I-70, Riverside Parkway, US 50, Patterson Road, US6/North Avenue and SH 340 are the key regional roadway systems and the quality of transportation in the Grand Valley is dependent on all these roadways functioning at an acceptable level.
- Based on the alternative analysis process I-70B will need additional capacity during the study's planning horizon 2004-2030.
- The City of Grand Junction completed the *Riverside Parkway Study* which determined that Riverside Parkway will play a role in the overall regional roadway system. Voters approved the funding of Riverside Parkway and this new roadway will help alleviate congestion on I-70B.
- The City of Grand Junction jointly with Mesa County completed the *West Metro Transportation Study* which determined that 29 Road is the key north-south corridor for providing an improved regional transportation network. The improvements on 29 Road include providing a new rail crossing, a new bridge crossing over the Colorado River, and an interchange at I-70.
- The location and timing of additional capacity improvements all along I-70B will be identified through the regional planning process.

### *Alternative Impacts and Relationship to I-70B*

The alternatives with the highest total score, Alternatives G, H, Q, R, and S, included widening all or part of I-70B to six lanes, underscoring the fact that I-70B will need additional capacity in the future. These alternatives meet future mobility needs. However, these are also the same alternatives that have some of the greatest access, environmental and cost impacts. Below is a summary of potential impacts by alternative to I-70B.

- Alternative A – Adding more capacity on I-70 does not help to relieve congestion along I-70B. The congestion levels on I-70 are greatly improved, as expected with this alternative. I-70 is an important link in the regional system and the added capacity to I-70 improves the overall regional system. The cost of Alternative A is high mostly due to reconstruction of the interchanges necessary for the improvements; however environmental, access and right-of-way impacts remain low.
- Alternative B – This alternative has the same results as Alternative A. The cost impact is also high with this alternative but not quite as high as the cost impact of Alternative A.



- Alternative C – This alternative has the same results as Alternative A and Alternative B yet the cost impact is much lower due to the shorter segment of improvements.
- Alternative D – Adding more capacity on 29 Road does not help to relieve congestion along I-70B. Congestion relief along 29 Road is minimal. This alternative has high right-of-way impacts and as a result does not serve future land use activities or reflect local community values.
- Alternative E – Adding capacity on 29 Road and 32 Road does help to relieve some congestion along the eastern segment of I-70B. The congestion along 29 Road and 32 Road is also improved. This alternative would serve the regional commercial traffic by providing more direct access between I-70 and US 50. However, just as with Alternative D, the high right-of-way impacts are not agreeable to the community image and future land use plans. Alternative E may have high structural, environmental and cost impacts as well.
- Alternative F – Adding capacity on Riverside Parkway does not help relieve congestion along I-70B. The congestion levels on Riverside Parkway are greatly improved as expected with this alternative. High impacts are likely with regards to right-of-way, structures, and the environment. Alternative F does not reflect local community values.
- Alternative G – Adding capacity on I-70B significantly improves the congestion on I-70B. I-70B is an important link in the regional system linking I-70, US 50, SH 340 and SH 141. This improves service to the commercial traffic as well. This alternative reflects local values as I-70B plays an important role in linking local services such as Mesa Mall and Downtown Grand Junction. The cost of Alternative G is high due to length of the corridor improvements. Access impacts may also be high. Environmental, structural and right-of-way impacts are relatively low.
- Alternative H – Adding capacity on the west-side of I-70B significantly improves the congestion on the west-side of I-70B. The congestion along I-70B in the central and eastern segments does not improve. This alternative has the same results as Alternative G yet the cost impact is much lower due to the shorter segment of improvements.
- Alternative I – Changing the 1<sup>st</sup> Street/ North Avenue intersection to a cul-de-sac degrades congestion levels along I-70B near this intersection. The congestion levels along Grand Avenue also degrade with Alternative I. With the exception of high access impacts, all other impacts are low including cost. This alternative is not consistent with future land use activities nor does it strengthen the community image.
- Alternative J – Adding capacity on US 50 does not relieve congestion along I-70B. The congestion levels on US 50 are improved as expected with this alternative. This alternative helps to enhance the image of the community and improves commercial traffic service as US 50 is a well-traveled commercial route. The right-of-way, structural and environmental impacts may be high with Alternative J.



- Alternative K – Implementing the Westside Downtown Plan recommendations does improve the congestion along I-70B in the central segment. However this alternative was eliminated because capacity improvements in this area have been included in Alternative G. Alternative K did not provide any more information that what was already provided in Alternative G.
- Alternative L – Adding capacity on 25 Road and an interchange at I-70 and 25 Road does not help to relieve congestion on I-70B. This alternative also attracts more trips to the area with the new interchange and as a result the level of service on I-70 degrades. Community image is also degraded and Alternative L is not consistent with future land use plans. 25 Road and other nearby local roads need to be improved to accommodate the increase in truck traffic. High environmental, structural and right-of-way impacts are anticipated.
- Alternative M – Adding capacity on 26 Road and an interchange at I-70 and 26 Road does not help to relieve congestion on I-70B. This alternative has the same results as Alternative L.
- Alternative N – Adding capacity on 30 Road and an interchange at I-70 and 30 Road does not help congestion levels on I-70B. This alternative, like Alternative L and Alternative M, attracts more trips to the area with the new interchange and as a result the level of service on I-70 degrades. Community image is also degraded and Alternative N is not consistent with future land use plans. However, the environmental, structural and right-of-way impacts are lower in Alternative N compared to Alternative L and Alternative M.
- Alternative O – Adding capacity on 30 Road and 29 Road, adding an interchange at I-70 and 30 Road, and removing the I-70/29 Road interchange does not help to relieve congestion along I-70B. The new interchange at I-70 and 30 Road attracts more trips to the area which causes the level of service on I-70 to degrade. Most of the impacts with regard to right-of-way, environmental, and access are low.
- Alternative P – Adding capacity on Patterson Road does not help to relieve congestion along I-70B. Along Patterson Road there are segments with congestion improvement however the added capacity attracts more vehicles to Patterson Road and several segments have degraded in terms of traffic flow. This alternative does not reflect community values and although the structural impacts are low, the cost, access, environmental and right-of-way impacts are high.
- Alternative Q – Adding capacity on I-70 and I-70B does help alleviate congestion along I-70B. Congestion along I-70 is significantly improved. I-70B and I-70 are important links in the regional system and the added capacity to both of these roadways improves the overall regional system. This improves service to the commercial traffic as well. This alternative reflects local values as I-70B and I-70 play an important role in linking local services such as Mesa Mall and Downtown Grand Junction. The cost of Alternative Q is high due to reconstruction of the interchanges along I-70 and the length of



improvements along both I-70 and I-70B. Environmental and access impacts may be high as well.

- Alternative R – Adding capacity on I-70B and US 50 significantly helps alleviate congestion along I-70B. The level of service on US 50 is also improved. This alternative helps to enhance the image of the community and improves commercial traffic service as I-70B and US 50 are well-traveled commercial routes. I-70B and US 50 are important links in the regional system and the added capacity to both of these roadways improves the overall regional system. The right-of-way, structural and environmental, access and cost impacts may be high with Alternative R.
- Alternative S – Adding capacity on the west-side of I-70B and US 50 helps alleviate congestion along the west-side of I-70B and US 50. The congestion along I-70B in the central and eastern segments does not improve. This alternative has the same results as Alternative R yet the cost impact is much lower due to the shorter segment of improvements along I-70B.
- Alternative T – Adding a connection over the railroad at 12<sup>th</sup> Street does not help to relieve congestion along I-70B. The connection does improve regional roadway connectivity and service to commercial traffic. However, this alternative does not reflect community values and may have high structural and cost impacts. The right-of-way, environmental and access impacts are most likely low.