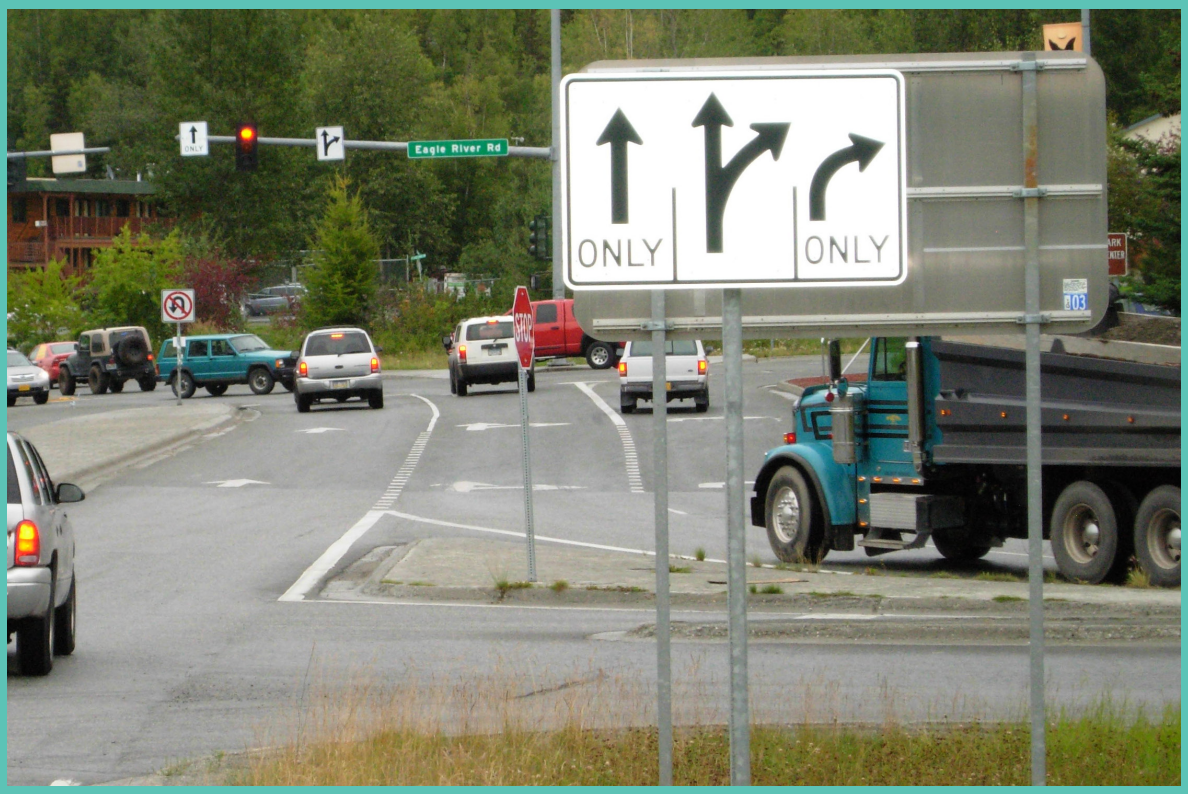

Eagle River Central Business District and Residential Core Circulation Study

Final Report February 24th, 2011

KITTELSON & ASSOCIATES, INC.
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AMATS
Anchorage Metropolitan Area Transportation Solutions

Eagle River Central Business District and Residential Core Circulation Study

Final Report approved by AMATS Policy Committee
February 24, 2011

Prepared for: Municipality of Anchorage
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Land Design North / USKH

MOA Project No. 772880

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Mark Littlefield, General Foreman, MOA Public Works Department (Eagle River)
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Michael Melielo, Past President, Chugiak-Eagle River Chamber of Commerce

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Lori Schanche, PLA, Non-Motorized Transportation Coordinator, Project Management & Engineering, MOA Public Works Department
Alton Staff, Former Senior Planner, MOA Public Transportation Department
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FINAL REPORT

Approved as Final Report by the AMATS Policy Committee February 24, 2011

Date: September 16, 2010 Project #: 10440.0

To: Vivian Underwood
Municipality of Anchorage
4700 Elmore Road
Anchorage, AK 99507

MOA Project #: 772880

From: Chris Tiesler, P.E., Phill Worth, & Gary Katsion
Project: Eagle River Central Business District and Residential Core Circulation Study

INTRODUCTION

The foundation of a vibrant Eagle River Central Business District (CBD) is a fully integrated land use and transportation system. It is essential that people and goods move safety and efficiently within and through the business district. Residents of the community should feel "connected" to the area and proud to claim it as their downtown. Unfortunately, the existing transportation system creates barriers for access and circulation, the perception of an unfriendly pedestrian environment, and frustration with congestion that grows with the community. These challenges are expected to continue as the Chugiak-Eagle River area is projected to grow to a population of approximately 55,000 residents and an employment base of roughly 8,100 within the next 20 years.

At the heart of this project is the Old Glenn Highway, the critical transportation corridor through the Chugiak-Eagle River CBD. Its function has changed as the transportation system and the built environment of Eagle River has developed and evolved over the past 40 years. Once the only north-south arterial for both local and regional travel through the city, the Old Glenn Highway now serves predominantly local traffic, yet remains the only north-south access into the business core. Traffic to and from this area must travel through already constrained intersections, contributing to congestion in downtown Eagle River. While the majority of users on the Old Glenn Highway travel by automobile, the corridor is also a vital link for pedestrians, bicyclists, transit users, emergency service providers, and freight traffic. Ultimately, for a vibrant economy and community, the Old Glenn Highway must balance the need to provide access to adjacent land uses while maintaining end-to-end mobility along the corridor.

The adopted 2027 Long Range Transportation Plan for the Chugiak-Eagle River area identified the need for this study and this report presents the study approach, methodology, analyses results, the findings and recommendations.

Project Purpose

The purpose of this study is to enable the Chugiak-Eagle River community to develop cost-effective and implementable solutions that address access, circulation, safety, and multi-modal amenities, creating a robust and vibrant downtown core. The development of a complete, interconnected network of roadway, pedestrian/bicycle, and transit facilities is the primary technical task of this study. The project team examined the performance of the transportation system under a variety of scenarios that considered new links, improved parallel routes, modifications to intersections, and enhancements of the pedestrian, bicycle, and transit facilities. The resulting three Solution Strategies meet the needs for local and regional mobility and reliability, while creating a safer and more attractive place for pedestrians and increased opportunities for transit to meet the future travel needs of the community.

Public Participation Process

The measures of success for this study were determined through a closely coordinated public participation process with key stakeholders comprised of local governmental officials, Community Councils, business leaders, transportation system providers (Municipality of Anchorage [MOA], People Mover, and the Alaska Department of Transportation and Public Facilities [ADOT&PF]), and interested neighborhood residents. Stakeholders were guided through the study process to develop feasible options (based on performance, cost, and community impacts) before deciding upon the "best" plan of action. The resulting plan will be a buildable and well functioning transportation system that will ensure a vibrant future CBD for the Chugiak-Eagle River area residents and business owners.

The project team set the following goals for public participation for the Eagle River Central Business District (CBD) and Residential Core Circulation Study:

- Provide timely and accurate information to the public regarding the project through a variety of means. For example: public meetings, advertisements, e-mail, telephone, written correspondence, news articles, and Web postings.
- Acknowledge comments and concerns in the format received and provide feedback on how the input influenced project decisions.
- Coordinate with agencies.
- Share information in a transparent way so that members of the public become familiar with the issues and the team's response to them.
- Clearly state how, when and where people can be involved in project decision-making.

- Clearly outline the project development process.
- Reach out to include a broad group of stakeholders in project decisions.
- Seek out and engage local government entities in project decisions.

Throughout the conduct of this study, the technical advisory team, key stakeholders, and the general public were informed of the analysis results and findings. A project Website has been kept up-to-date with the latest project information and the ability for citizens to provide comments.

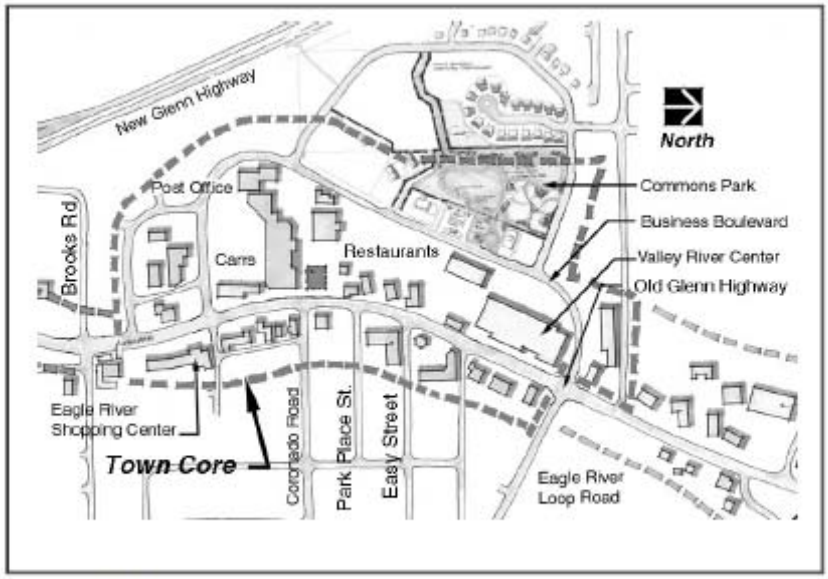
There were two public meetings in which interested citizens commented on the identification of transportation issues and the development of the solution strategies, respectively. A third and final public meeting will be held in early September to present the findings and recommendation of the study. The public comments from this public meeting will be incorporated into the final report.

BACKGROUND

Project Vision - Downtown Revitalization Plan

The vision for this project was initiated with the development and adoption of the Eagle River Downtown Revitalization Plan in October 2003. The intent of Eagle River CBD Revitalization Plan was to explore opportunities and provide tools in support of developing a more cohesive town center in Eagle River's Central Business District. The Plan was developed based on public involvement and existing conditions analysis and has three specific and interrelated components:

- **Urban Design Study:** This section provides recommendations and strategies to improve the general appearance and vitality of downtown Eagle River. It outlines a Town Center Concept with community focal points, traffic circulation issues and alternatives discussion, recommended pedestrian improvements, design guidelines, and implementation strategies.

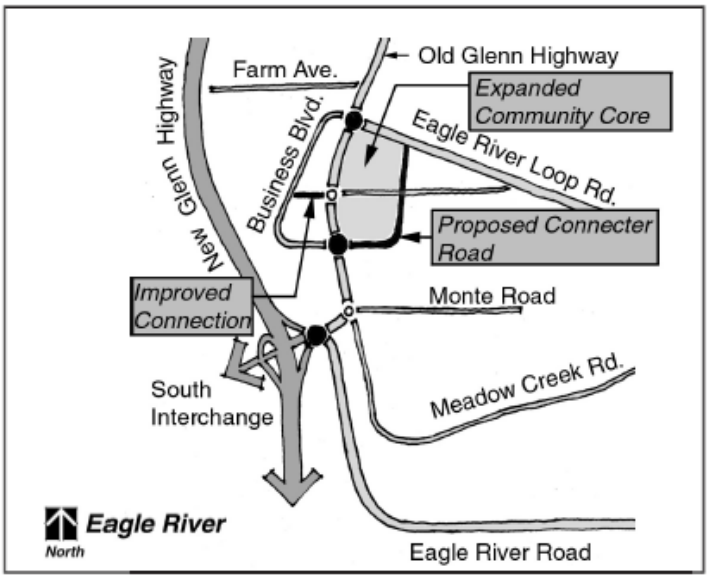


- **Bicycle/Pedestrian Circulation Plan:** This segment identifies key existing destination points and means of connecting them either through existing trails/pathways and improvements. A key recommendation is to improve and provide additional crossing points on the Old Glenn Highway as a means of improving pedestrian safety and encouraging people to walk.

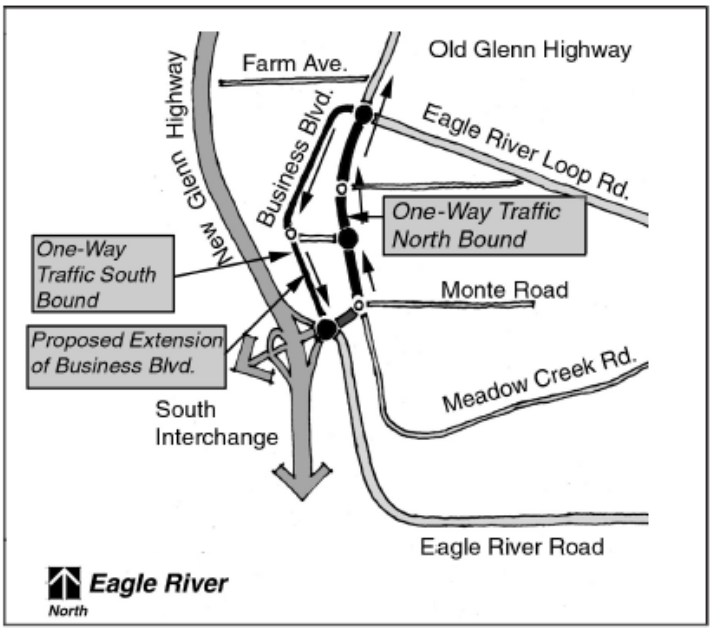
- **Commons Park Master Plan:** The third planning element considers placement of park facilities and phased improvements to an eight-acre tract. The Plan emphasizes developing this key public space in the heart of town in support of a strong downtown core.

Throughout the Revitalization Plan, a major theme is the significant challenge of developing a main street and vital downtown environment, given the existing traffic volumes and issues relating to the Old Glenn Highway. Section Two of the Revitalization Plan specifically recommends that a Core Circulation Study be completed to develop design solutions in anticipation of traffic generators, and to consider further circulation alternatives for creating a stronger downtown core, including:

- **New Roadway Loop:** This would be constructed on the east side of the Old Glenn Highway, intersecting with Eagle River Loop Road to disperse traffic and allow the Old Glenn Highway to be reduced from two lanes in each direction, with a center turning lane, to one lane in each direction, a center median, and on-street parking, with additional room within the right-of-way for improved pedestrian walkways, landscaping, lighting, and a variety of street furnishings.



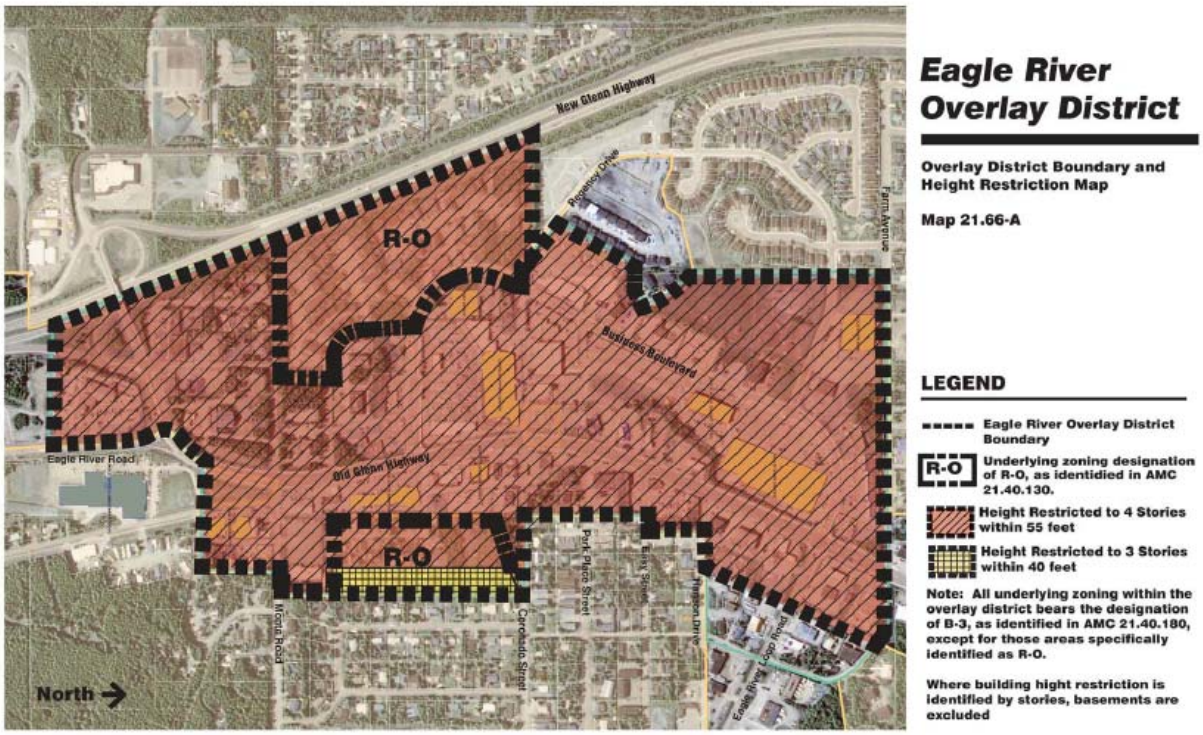
- **One-way Couplet Alternative:** A one-way couplet that uses Business Boulevard and the Old Glenn Highway. In this alternative, Business Boulevard would be extended to join Artillery Road at the intersection with Eagle River Road.



Project Land Use Plan - Downtown Eagle River Overlay District
Adopted July 21, 2009 under Anchorage Ordinance 2009–26(S)

The intent of the *Downtown Eagle River Overlay District* (Reference 1) was to amend "blue sky" B3 zoning with supplemental land use restrictions more supportive of a cohesive, walkable and attractive town center in downtown Eagle River. The Overlay was initiated in 2006 with the purpose of developing supplemental land use restrictions for downtown using the Municipality of Anchorage's new overlay ordinance 21.20.140. Leading the effort was the Eagle River Chamber

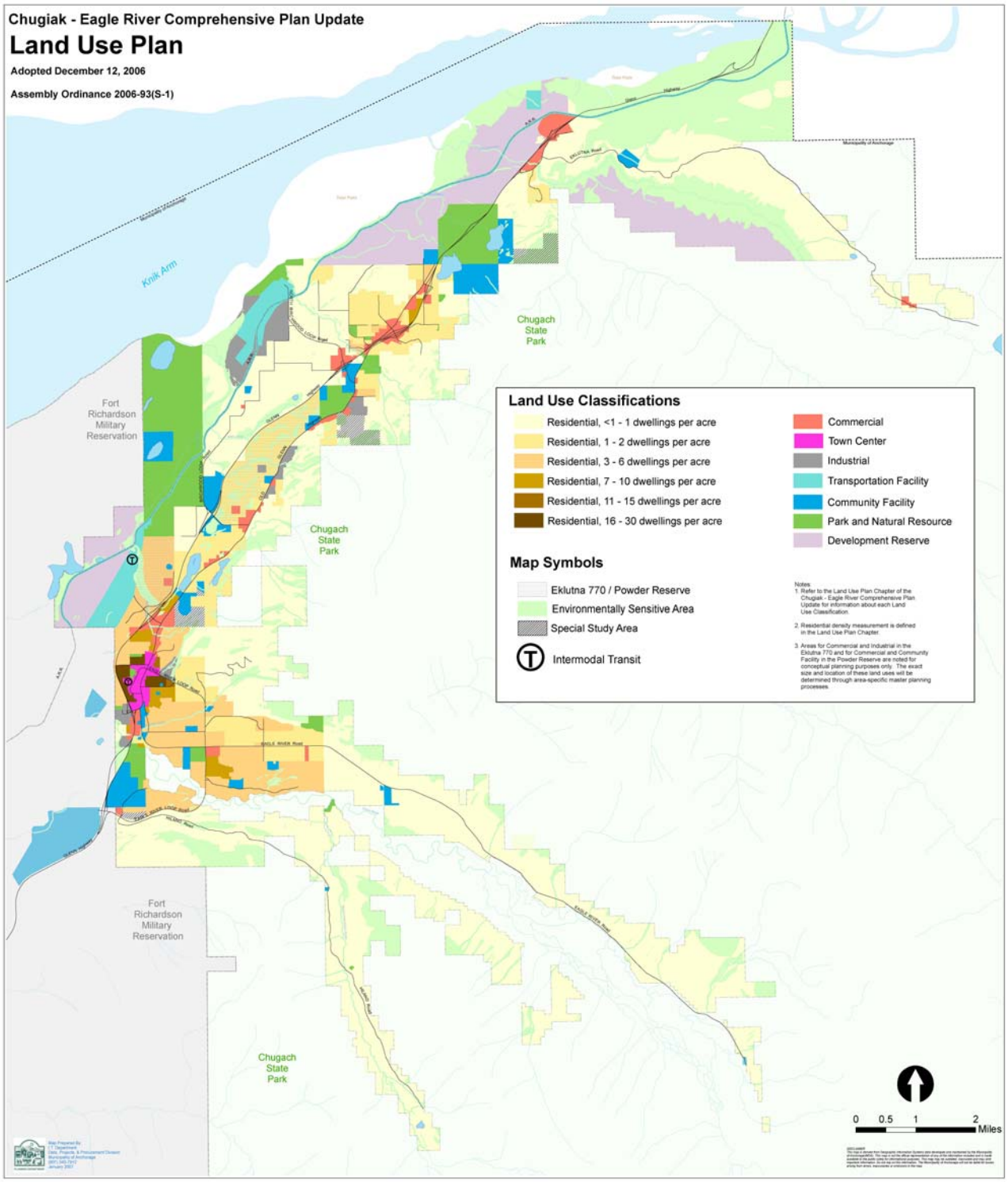
of Commerce, reflecting their memberships' desire to establish more locally-appropriate zoning and helps foster a vibrant main street environment supportive of local businesses and community identity, rather than continue the proliferation of automobile-related convenience shopping and land uses like self-storage units. In developing the overlay code, Chamber members engaged in a community-wide discussion with significant outreach to the business community and the residents of Chugiak-Eagle River. In 2009 the Overlay was adopted to provide supplemental land use restrictions for R3 and R-0 zoned parcels in a specific core area. The regulations address land uses, site and architectural design requirements, grandfathering allowances, and set the tone for what the community would like to see in their downtown core in the future.



2006 Comprehensive Plan Update – Updated Eagle River Land Use Map
Adopted December 21, 2006 under Anchorage Ordinance 2006–93(S-1)

The intent of the 2006 update to the Land Use Plan Map (Reference 2) was to supplement and update the outdated Generalized Land Use Plan map. The updated map is shown on the next page. The updated map provides more specific policy guidance for the distribution, general location, and density of future land use development for Eagle River. Note that:

- It designates the future location and intensity of residential, commercial, industrial and institutional.
- It helps ensure that Eagle River's growing population will have adequate housing, employment and recreation opportunities.
- It is not a zoning map; rather, it provides long-term generalized policy guidance and a legal basis for future changes to the city's zoning map.


Chugiak - Eagle River Comprehensive Plan Update
Land Use Plan
Adopted December 12, 2006
Assembly Ordinance 2006-93(S-1)
Knik Arm
Chugach State Park
Fort Richardson Military Reservation
Land Use Classifications
Residential, <1 - 1 dwellings per acre
Residential, 1 - 2 dwellings per acre
Residential, 3 - 6 dwellings per acre
Residential, 7 - 10 dwellings per acre
Residential, 11 - 15 dwellings per acre
Residential, 16 - 30 dwellings per acre
Commercial
Town Center
Industrial
Transportation Facility
Community Facility
Park and Natural Resource
Development Reserve
Map Symbols
Eklutna 770 / Powder Reserve
Environmentally Sensitive Area
Special Study Area
Intermodal Transit
0 0.5 1 2 Miles

GUIDING PRINCIPLES

Guiding principles provide the opportunity to establish a common set of criteria used by a broad cross-section of stakeholders to evaluate alternative solutions. A total of six guiding principles were developed for this study with collaboration from public agencies, business and residential stakeholders, and community leaders, providing all parties with the common ground from which to work. These guiding principles correlate strongly with the Chugiak-Eagle River Comprehensive Plan and Comprehensive Plan Update, while simultaneously capturing the local and regional vision and goals for Eagle River.

- Develop transportation solutions that support a robust and vibrant downtown core, building upon the community's vision for downtown Eagle River.
- Plan a complete, interconnected network of roadway, pedestrian/bicycle, and transit facilities to meet the area's needs for circulation, access, safety, and aesthetics.
- Balance community mobility needs with local access needs along the Old Glenn Highway corridor.
- Build consensus for action among local government officials, Community Councils, business leaders, transportation providers, and residents.
- Balance short-term disruptions/impacts to businesses with the intended long-term economic stimulus of the downtown core.
- Develop a set of actionable, cost-effective transportation improvements/solutions with logical sequencing for future incorporation into the Long Range Transportation Plan, the regional Transportation Improvement Program, and the local Capital Improvement Program.

EXISTING CONDITIONS

The Project Team fully examined the transportation safety and mobility issues in the Old Glenn Highway corridor and surrounding local street system in the CBD of Chugiak-Eagle River. The Team members used the latest industry research of the newly created *Highway Safety Manual* and upcoming 2010 *Highway Capacity Manual*, including a new Multi-Modal Level of Service analysis methodology, during this project.

The existing traffic conditions in the study area were documented in the Technical Memorandum #3 (Reference 3). The existing conditions were developed based on data collected from a variety of planning documents and coordination with MOA staff. A planning level assessment of the existing transportation network, an operational analysis of key intersections, safety assessment, and a multi-modal level-of-service analysis for three segments of the Old Glenn Highway was conducted to identify existing system deficiencies, confirm the appropriateness of committed projects, and create a solid foundation for developing feasible multi-modal transportation solutions in the Eagle River downtown central business district. Based on the analysis herein, the following system characteristics were identified:

Circulation & Access

- There are no parallel, north-south streets on either side of the Old Glenn Highway that extend from the North Eagle River Access Road to Artillery Road. Thus, virtually all of the north-south travel through the study area is forced to use the Old Glenn Highway, regardless of how congested the street is.
- Many of the east-west streets in the study area only intersect but do not cross the Old Glenn Highway creating further challenges to circulation. Circulation in downtown Eagle River is very constrained.
- The overall frequency of driveways on the Old Glenn Highway is contributing to the congestion, resulting in the following outcomes:
    - fewer motorists have access to uses adjacent to the Old Glenn Highway;
    - fewer motorists have access to all other accesses in the CBD; and,
    - fewer motorists can circulate through the CBD to access other areas of the community or the Glenn Highway Corridor.

Old Glenn Highway Operations

- All four signalized intersections on the Old Glenn Highway are forecast to operate over capacity during the weekday p.m. peak hour by 2035.
- Minor traffic movements at the unsignalized intersections on the Old Glenn Highway at Farm Avenue and Monte Road experience high delays and present safety problems.
- Segments of the Old Glenn Highway, particularly between Artillery Road and Monte Road, are projected to operate below established Level of Service (LOS) standards.
- A general lack of pedestrian facilities creates potential for east-west pedestrian movements throughout the Old Glenn Highway corridor at unmarked locations, particularly at or near Monte Road and Coronado Road (limited gaps in traffic and no pedestrian refuge areas).
- Near-term planned developments are anticipated to increase pressure on the Old Glenn Highway, particularly at the intersections with Monte Road, Eagle River Road, and Coronado Road.
- The proximity of the Old Glenn Highway/Eagle River Road/Artillery Road intersection to the Glenn Highway interchange creates congestion due to challenging weaving patterns.
- Increased demand to the Powder Reserve is worsening congestion at the Old Glenn Highway/North Eagle River Access Road interchange.
- Heavy traffic volumes on the Old Glenn Highway, particularly during peak periods, have raised traffic safety concerns for all users (vehicles, pedestrians, bikes, transit users).

Intersection Operations Analysis

- During the typical weekday a.m. peak hour, two of the 11 study area intersections have failing levels of service, based on excessive motorist delay:

  - The southbound approach at the Glenn Highway/North Eagle Access Road Southbound Ramp terminal operates at a LOS F with a southbound delay exceeding 50 seconds per vehicle.
  - The northbound approach at the Artillery Road/Glenn Highway Northbound Ramp terminal operates at LOS F with a northbound delay exceeding 50 seconds per vehicle.

- During the weekday p.m. peak hour, three of the 11 study area intersections have failing levels of service:
  - The southbound approach at the Glenn Highway/North Eagle Access Road Southbound Ramp terminal operates at a LOS F with a southbound delay exceeding 50 seconds per vehicle.
  - The northbound approach at the Artillery Road/Glenn Highway Northbound Ramp terminal operates at LOS F with a northbound delay exceeding 50 seconds per vehicle.
  - The Farm Avenue/Old Glenn Highway intersection is operating at near capacity with a volume-to-capacity ratio of 0.90, and operating at LOS F with high minor street delays.

Safety Assessment

Over 60 percent of all crashes reported in the study area occurred at the four signalized intersections along the Old Glenn Highway corridor:

- Artillery Road/Eagle River Road;
- Old Glenn Highway/South Business Boulevard;
- Old Glenn Highway/Eagle River Loop Road; and,
- Old Glenn Highway/North Eagle River Access Road.

There were a total of 208 crashes at the study intersections over the five-year period.

- Four crashes resulted in an incapacitated driver or passenger;
- Approximately 31 percent of crashes were associated with an injury or possible injury;
- Adverse weather (i.e., snow or ice) influenced approximately 57 percent of all crashes;
- The most frequent crash types reported were angle crashes (43 percent) and rear-end crashes (27 percent).

The potential to reduce crashes is expected to be greatest at these locations, and various operational, geometric, and signing improvements will be considered in subsequent analysis.

Multi-Modal Level-of-Service Analysis

Three segments of the Old Glenn Highway were analyzed from a planning-level multi-modal level-of-service perspective and revealed the following characteristics:

- Pedestrians receive the most consistent quality of service (LOS C) in both directions of travel and during both peak periods. The characteristics having the greatest impact on this are the frequency of driveways, the volume and speed of traffic, and the difficulty of crossing the Old Glenn Highway.

- Transit users receive the most inconsistent quality of service (LOS A-F), primarily due to limitations in service.

- Auto travel is more congested in the southbound direction, during the morning and evening peak periods, as compared to northbound travel. This congestion has related impacts to transit operations (average transit speed) and pedestrian movements (longer wait times to cross the Old Glenn Highway). This higher auto congestion actually contributes to an improved bicycle LOS, due to slower average vehicle travel speeds.

This baseline of multi-modal performance information will be used in developing and evaluating proposed solutions. Each proposed solution will be evaluated for its benefits and impacts to each mode of travel anticipated on the Old Glenn Highway corridor.

FUTURE CONDITIONS DEFICIENCY ANALYSIS

Technical Memorandum #5 (Reference 4) provides the details of the land use and transportation demand modeling efforts that were undertaken in this study to develop the future conditions for the transportation network in the study area. Circulation issues identified under existing conditions will be exacerbated by anticipated population and employment growth by 2035 in Eagle River. The Chugiak-Eagle River area is projected to grow to a population of approximately 55,000 residents and an employment base of roughly 8,100 within the next 20 years.

Three future improvement projects have been identified in the adopted 2006 Chugiak-Eagle River Transportation Plan and are assumed in all future scenarios:

Eagle River Road (Old Glenn Highway to Greenhouse Street 2006-2015)
Glenn Highway (Hiland Road to Artillery Road 2006-2015)
Glenn Highway HOV Lanes (Boniface to S. Peters Creek 2016-2025)

Assuming no other changes to the existing roadway network, the following general future transportation system deficiencies were identified:

- Increased congestion for longer periods on the Old Glenn Highway
- Greater difficulty crossing the Old Glenn Highway
- Longer queues at all signals and interchange ramp terminals
- More streets and driveways blocked by vehicle queues
- Less time available for pedestrians to cross Old Glenn Highway without increasing automobile delay

- Left turns to and from the Old Glenn Highway are only possible at signals and off-peak times
- Driveway operations are substantially hampered

These deficiencies have the following implications:

- Significant drop in average travel speed on the Old Glenn Highway
- "Gridlock" conditions at the Artillery Road interchange
- Higher risk of certain types of crashes
- Potential need to:
    - Construct a median barrier to prevent left turns except at major intersections
    - Close or consolidate driveways and provide side-street access
    - Install more traffic signals to serve side-street demand
    - Prohibit certain turn-movements (i.e. SB Old Glenn Highway to Eagle River Road)
    - Widen segments of the Old Glenn Highway to seven lanes
    - Reconstruct the Artillery Road interchange
    - Prohibit pedestrian movements at critical intersections

Recognition of these deficiencies and implications provide the context for developing solution strategies that resonate with the community and align with the Guiding Principles established for this project.

SOLUTION STRATEGIES

Through the public involvement process, the project planning team identified four distinct solution strategies to resolve the identified deficiencies. These strategies reflect consideration of several over-arching themes and issues identified by the public and were developed to assess impacts certain solutions have on the transportation system. Modal considerations (pedestrian, bicycle, transit, freight) were key areas of focus for the project team. The strategies were developed with the following goals in mind:

- Make each solution strategy feasible
- Take a long-term view (core area build out, 50+ years)
- Address issues commonly expressed by all
- Clearly frame choices for how to address issues
- Respect the Guiding Principles

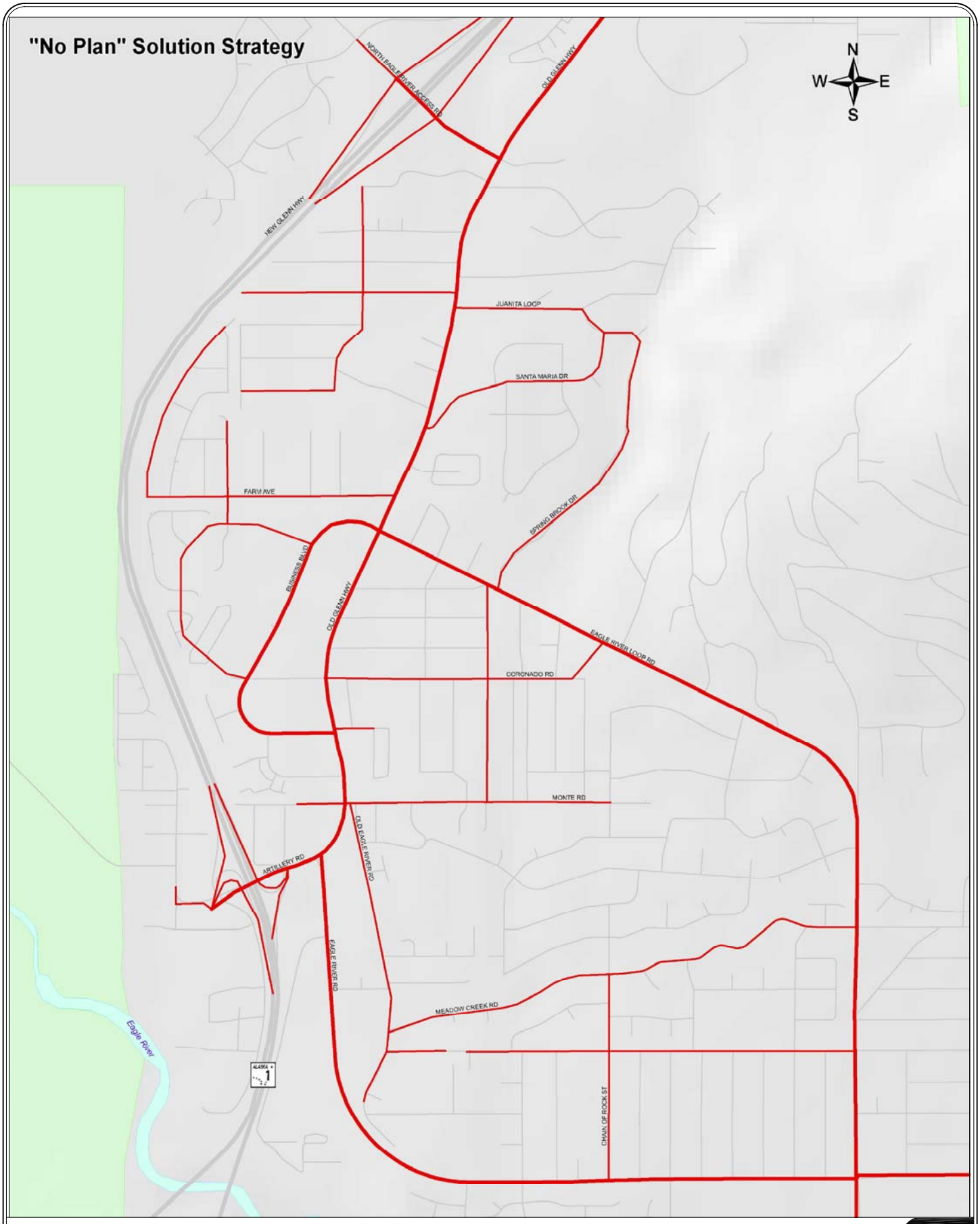
No-Plan Strategy

The No-Plan strategy, shown in Figure 1, assumes no street improvements beyond those that are currently contained in the 2006 Chugiak-Eagle River Transportation Plan. Under this strategy, the street system in the core area of Eagle River would remain essentially the same as it is now. This solution strategy would be almost entirely reactive to the current conditions, and would likely follow this general outline.

- Respond to issues as they arise

- Prepare solutions in an ad hoc fashion
- Find funding, when available
- Build solutions (following these priorities):
    - Safety first (for all modes)
    - Protect the Glenn Highway and interchange operations
    - Ensure mobility on the Old Glenn Highway
    - Address local access/circulation issues (for all modes)

The No-Plan strategy is useful as a basis of comparison in order to determine the degree of congestion improvement associated with the other strategies that may be considered. Figure 2 illustrates a generalized existing cross section of the Old Glenn Highway. Figure 3 shows a conceptual future cross section that represents one possible outcome for the Old Glenn Highway assuming no other major changes to the transportation system occur. In this case, the Old Glenn Highway would be upgraded in a piece-meal fashion and the roadway would likely be widened to three lanes in each direction with a continuous center median. This would require the purchase of additional right-of-way (from the Artillery Road interchange to the intersection with North Eagle River Access Road) and would impact businesses that are already close to the edge of the right-of-way.



NO-PLAN STRATEGY
EAGLE RIVER, ALASKA

FIGURE
1

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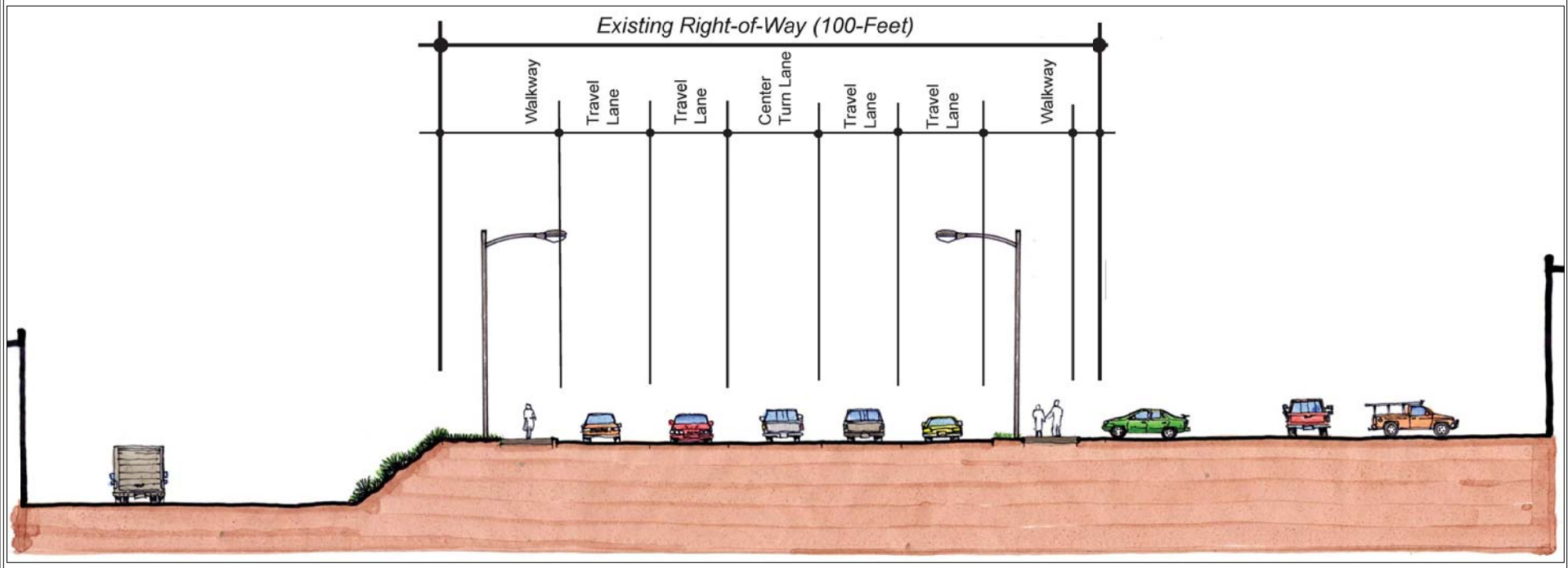

EXISTING CROSS SECTION
OLD GLENN HIGHWAY
EAGLE RIVER, ALASKA

FIGURE 2

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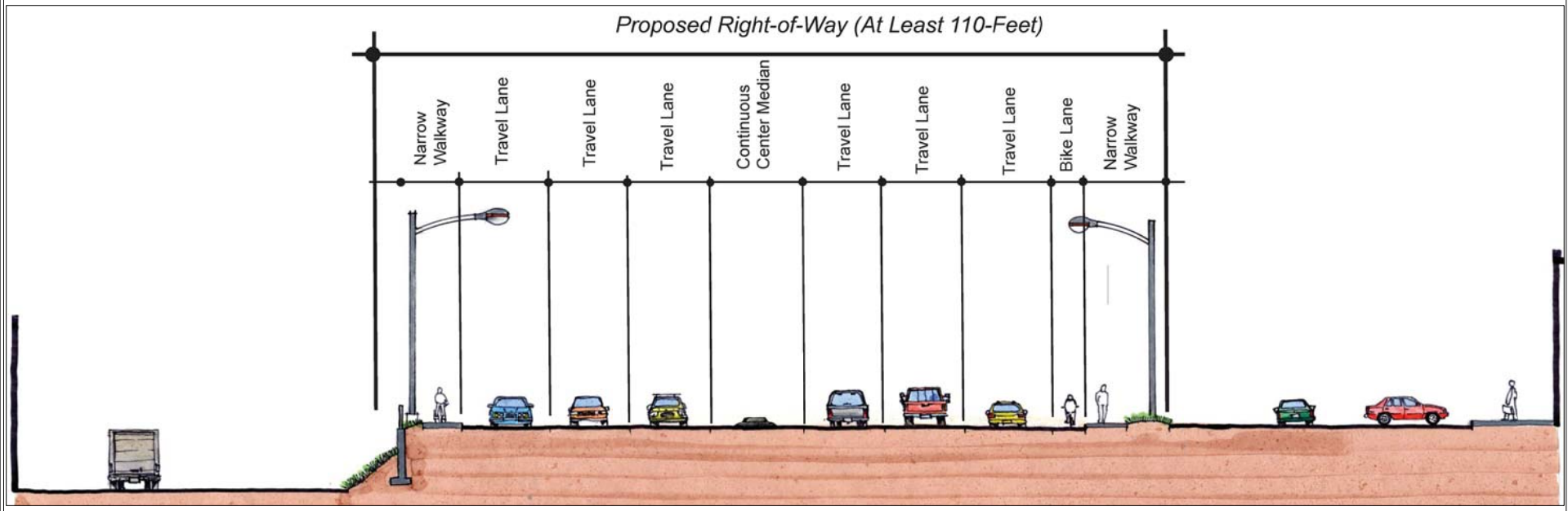


CONCEPTUAL FUTURE CROSS SECTION
OLD GLENN HIGHWAY
EAGLE RIVER, ALASKA

FIGURE 3

Major features of this conceptual "no-plan" improvement include:

- Impacts to existing businesses near the right-of-way on the Old Glenn Highway.
    - In some cases the entire business may have to be purchased to provide space for this roadway section. In other cases, parking would have to be removed from the front.
- Left turns allowed only at signalized intersections.
- Greater difficulty accessing and crossing the Old Glenn Highway from side streets.
- Continued reliance on the Old Glenn Highway for all north-south travel in Eagle River.
- A degradation of the pedestrian and bicycle environment.
- A degradation of transit operations and freight mobility.

Solution Strategy 1 – Connected Streets

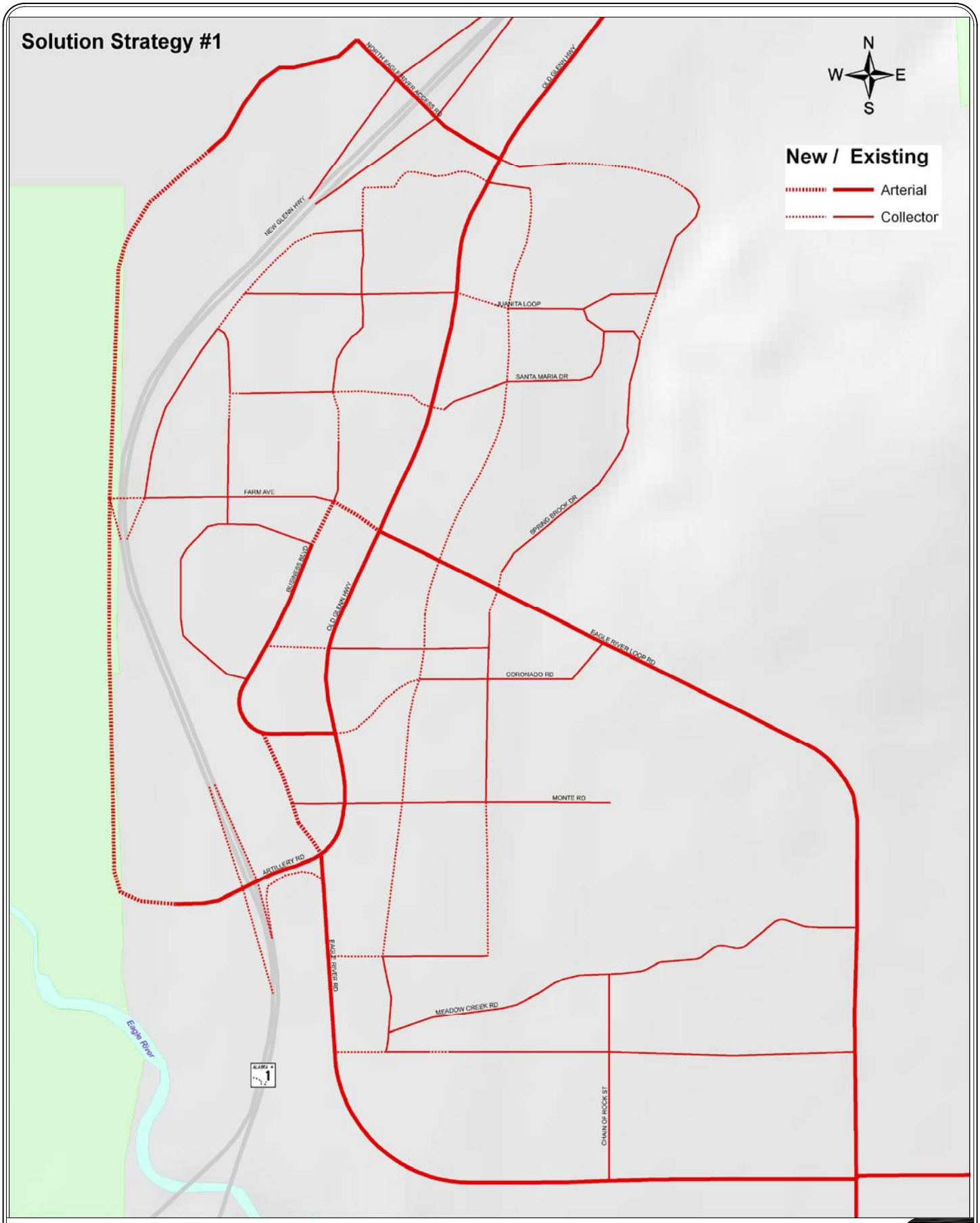
This strategy (see Figure 4) develops a connected network of two-way streets within the CBD to facilitate both north/south and east/west connectivity and circulation. By providing more options, opportunities to circulate within the downtown core are improved and pressure on the Old Glenn Highway is lessened. This strategy promotes regular block spacing and helps define how future development/redevelopment can occur in a logical manner to promote the vision of Eagle River's downtown area in the future. In addition, this strategy contemplates a new half-interchange connection to the Glenn Highway at Farm Avenue in an attempt to better distribute traffic to/from the Glenn Highway and relieve congestion at the existing interchanges. While this potential connection could be applied to all solution strategies, it has been considered exclusively in Solution Strategy 1 to provide a relative comparison between the other strategies and the no-plan strategy.

Figure 5 illustrates a generalized cross section of the Old Glenn Highway under this solution strategy. In this case, the overall cross section of the Old Glenn Highway would remain the same as the existing cross section.

Solution Strategy 2 – Couplet

This strategy (see Figure 6) develops a north-south couplet from Eagle River Road south of Baronoff Avenue to Riddle Street just south of Eagle River Access Loop Road at the north end of the study area. The northbound direction of the couplet is defined by Old Eagle River Road and Old Glenn Highway; the southbound direction is a combination of new roadway north of Farm Road, Business Boulevard, and Eagle River Road. This strategy shifts roughly half of the traffic currently on the Old Glenn Highway to other facilities, providing the potential to change the character and/or cross-section of Old Glenn and other roads. Regular east-west crossing intervals are proposed to promote regular block and signal spacing, creating better mobility and circulation options for both local and regional traffic. Additional street connections are also provided but to a lesser extent than in Solution Strategy 1.

Figure 7 illustrates a generalized cross section of the Old Glenn Highway in the proposed couplet section as well as a two-way street section.



SOLUTION STRATEGY 1
CONNECTED STREETS
EAGLE RIVER, ALASKA

FIGURE 4

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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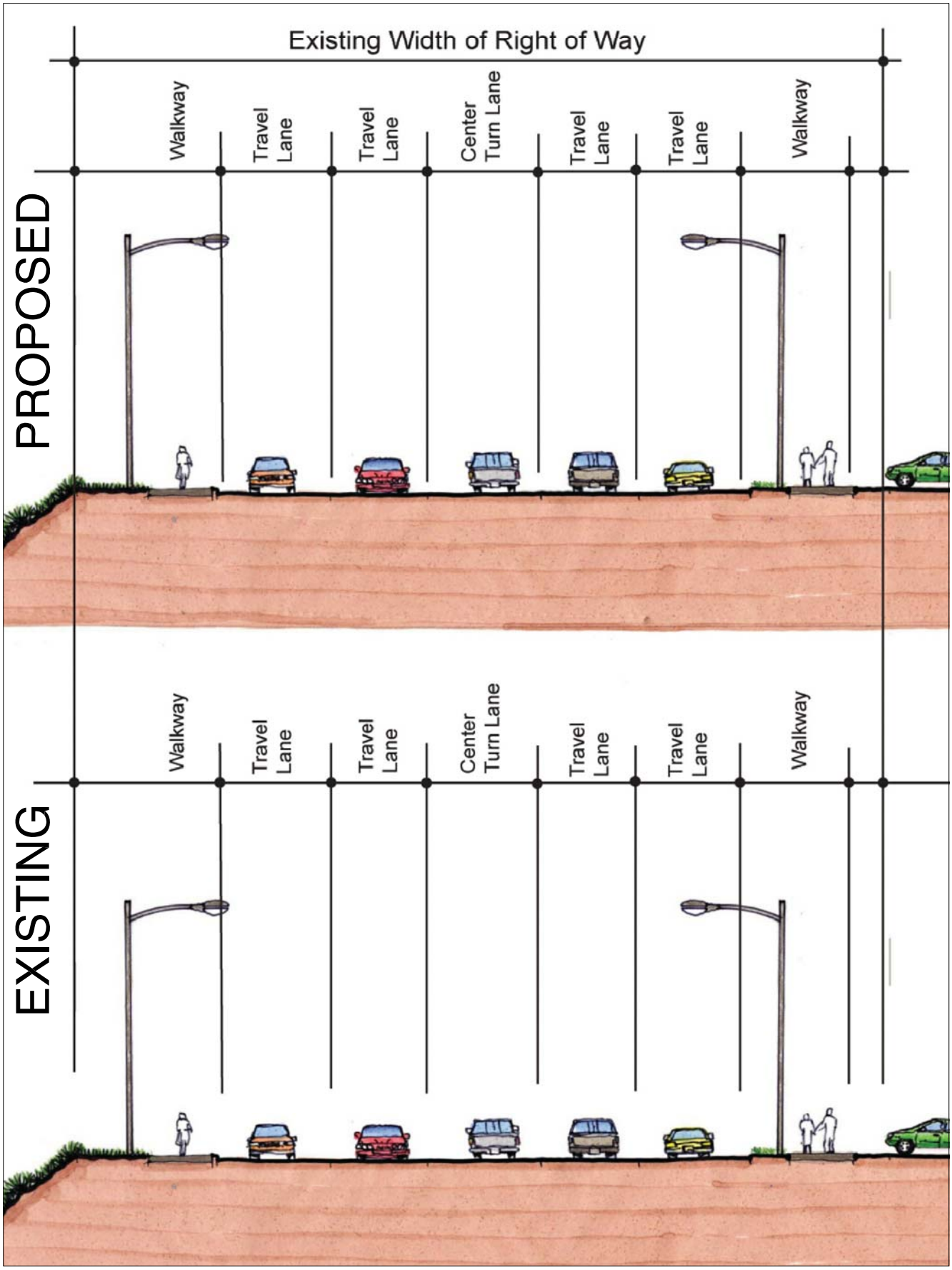

CONCEPTUAL CROSS SECTION - SOLUTION STRATEGY 1
OLD GLENN HIGHWAY
EAGLE RIVER, ALASKA

FIGURE 5

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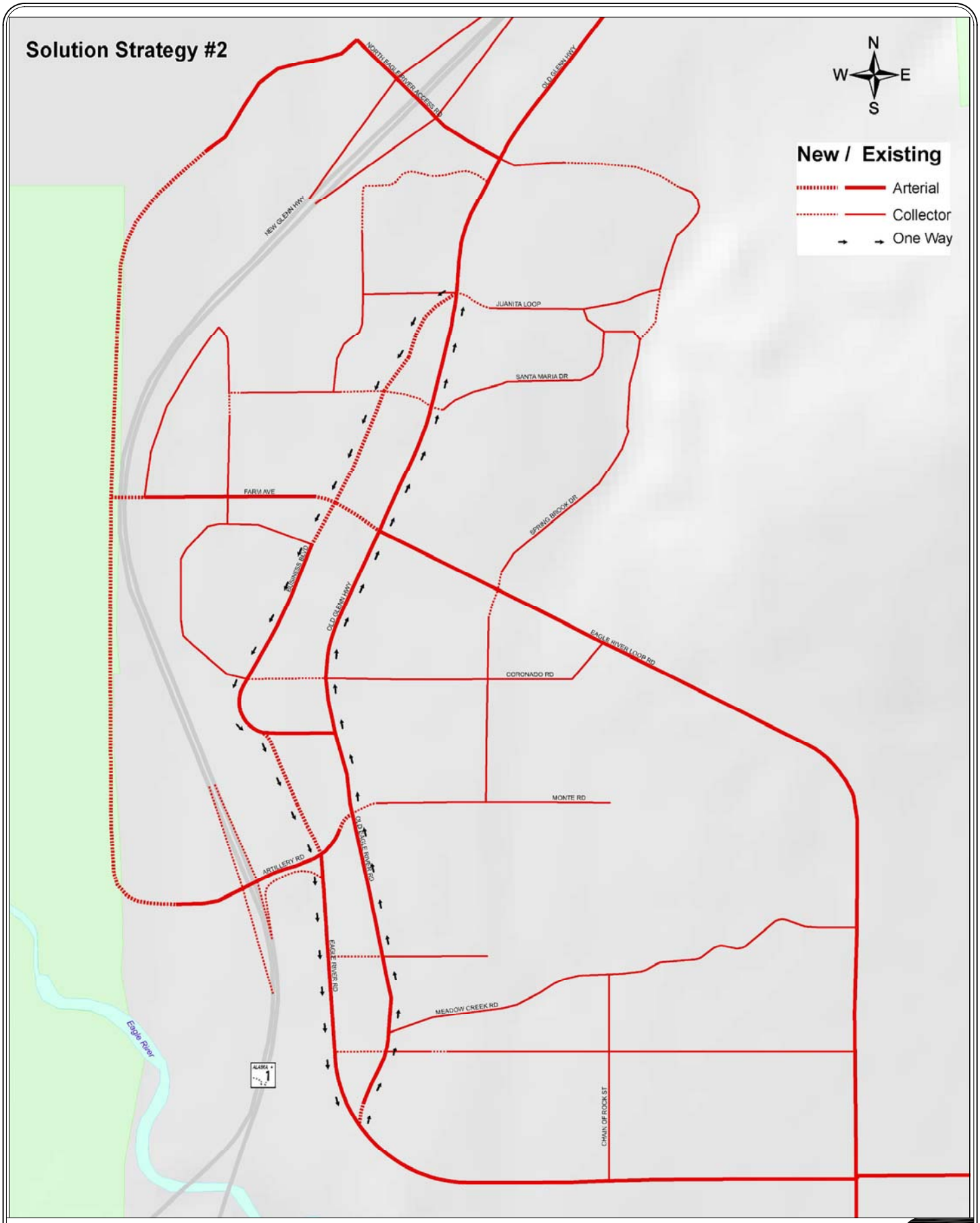

SOLUTION STRATEGY 2
COUPLET
EAGLE RIVER, ALASKA

FIGURE 6

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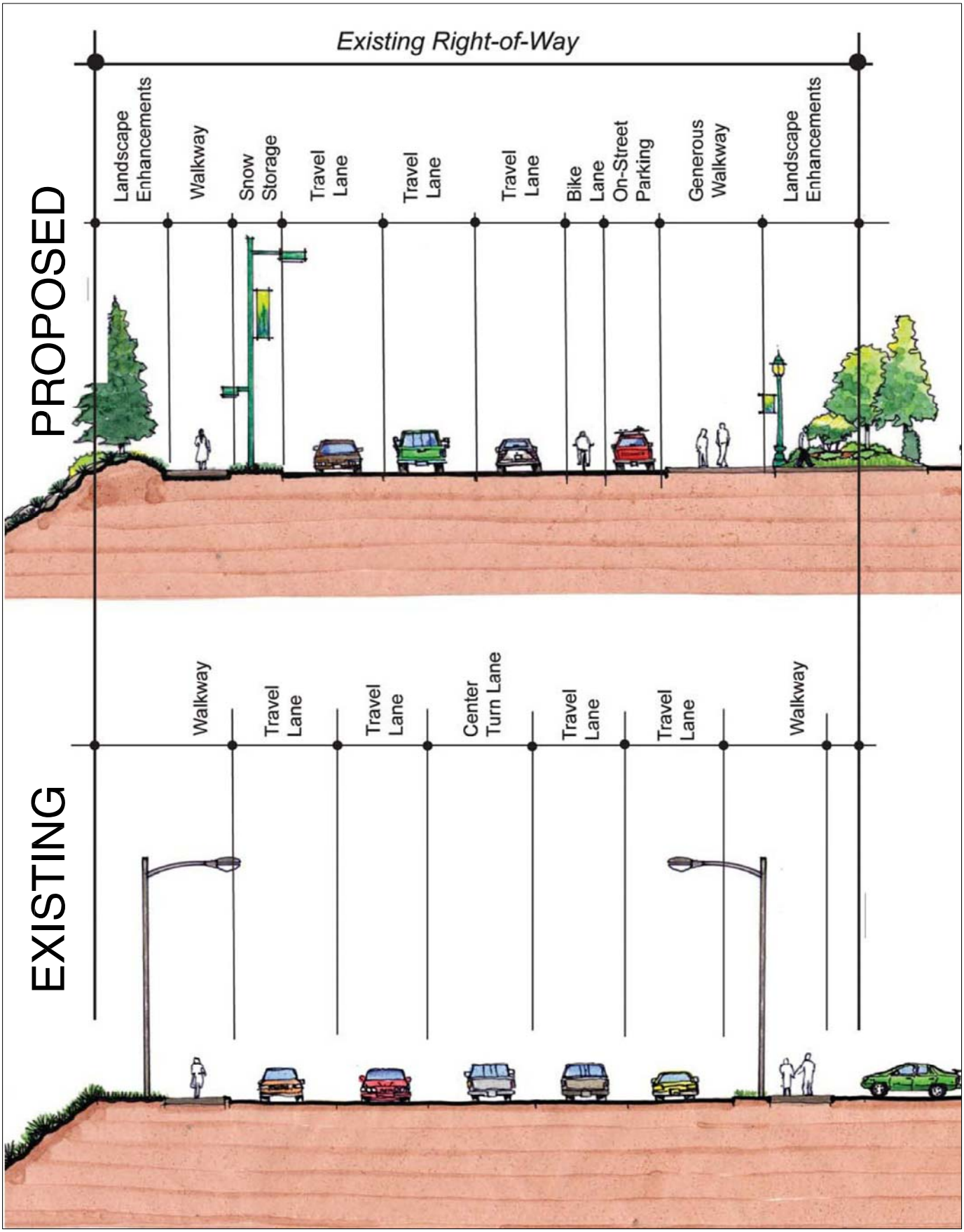

CONCEPTUAL CROSS SECTION - SOLUTION STRATEGY 2
OLD GLENN HIGHWAY
EAGLE RIVER, ALASKA

FIGURE 7

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Solution Strategy 3 – Main Street

This strategy (see Figure 8) develops a north-south couplet on either side of the Old Glenn Highway, allowing for the Old Glenn Highway itself to be re-characterized as a local "main street." Efficient north-south mobility is maintained via the couplet, while the Old Glenn Highway changes character to provide local access to the downtown core, with potential for substantial cross-section changes. A series of east-west cross streets enhance local connectivity and circulation, but to a lesser extent than in Solution Strategy 1. This strategy also provides opportunities for future development/redevelopment in Eagle River's downtown core consistent with the community's vision. Figure 9 illustrates a generalized cross section of the Old Glenn Highway as a main street.

EVALUATION OF SOLUTION STRATEGIES

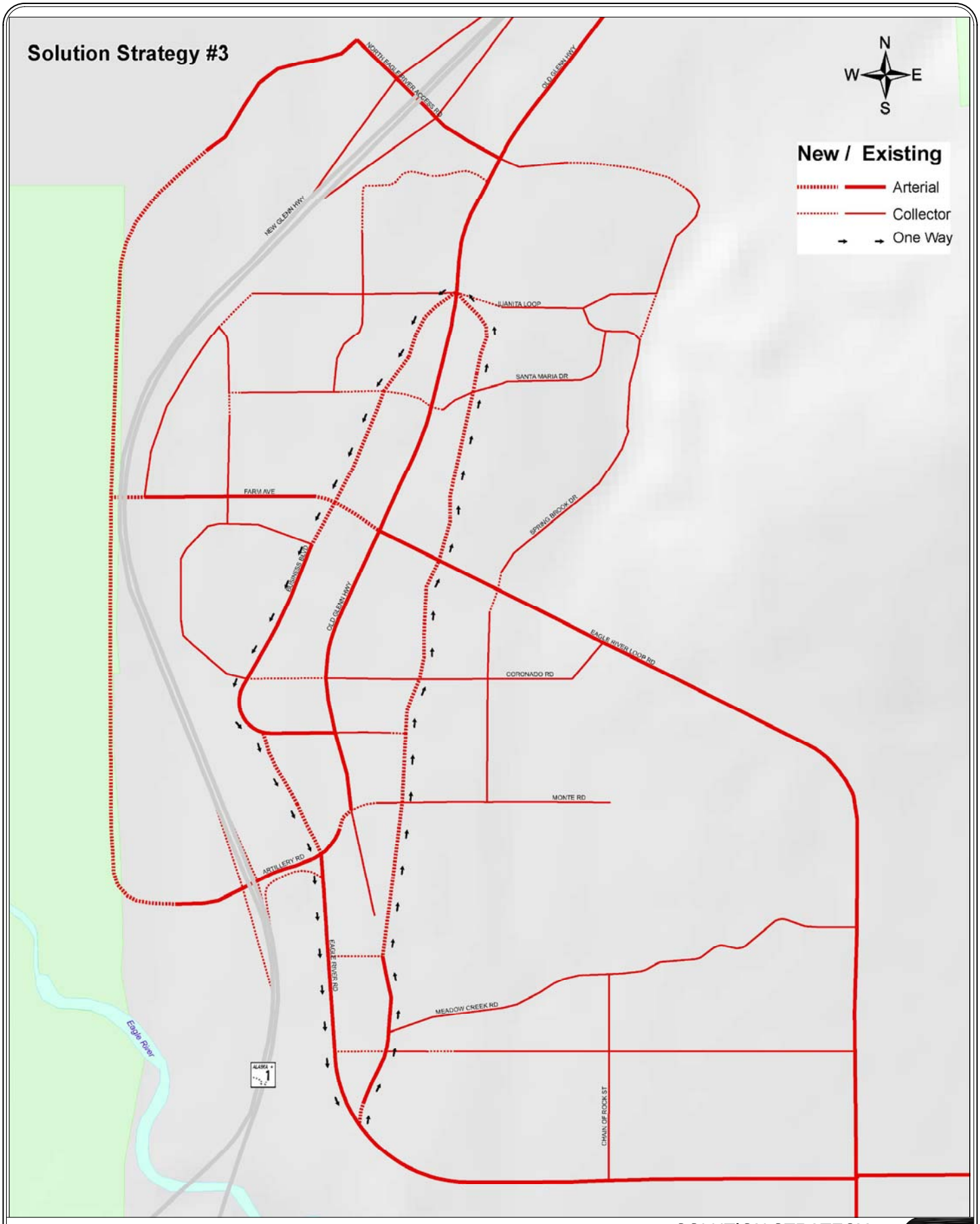
Forecast growth in Eagle River is anticipated to generate demands on the transportation network that in many cases will exceed existing capacity, exacerbating existing circulation and congestion issues. The identified deficiencies and their implications to the vibrancy and livability in Eagle River have led to the development of several transportation solution strategies contained in this memorandum. It is the intent of these strategies to provide thoughtful and strategic transportation solutions for the downtown central business district and residential core that resonate with the community and remain consistent with the guiding principles developed for this project.

All three "build" solution strategies provide good transportation system service for the Eagle River Central Business District and Residential Core area. Similar results are obtained for the performance indices of vehicle hours traveled per lane mile of facility type, vehicle miles traveled per lane mile of facility type and peak period level of service on the arterial and collector roadways in the area.

Public Feedback

The Solution Strategies were presented at a public meeting in April 2010. There was a strong sentiment that the No Plan Strategy was not an acceptable action plan for the long term viability of the community. After much discussion of the three "build" solution strategies, there was no clear consensus for one of them. However, there was strong consensus of the participants on the common features in each of the solution strategies as their implementation would address the majority of the significant operational and safety issues in the study area.

Based upon this reaction of the key stakeholders and participating citizens, it was decided by the project team that the remainder of this study's efforts be directed towards the development and implementation of features common to the Solution Strategies instead of prematurely pushing for community consensus around one of the Solution Strategies. The project team decided that the refinement of the Solution Strategies and the building of community consensus for a preferred Solution Strategy would be deferred until funds for this more detailed study could be identified.



SOLUTION STRATEGY 3
MAIN STREET
EAGLE RIVER, ALASKA

FIGURE
8

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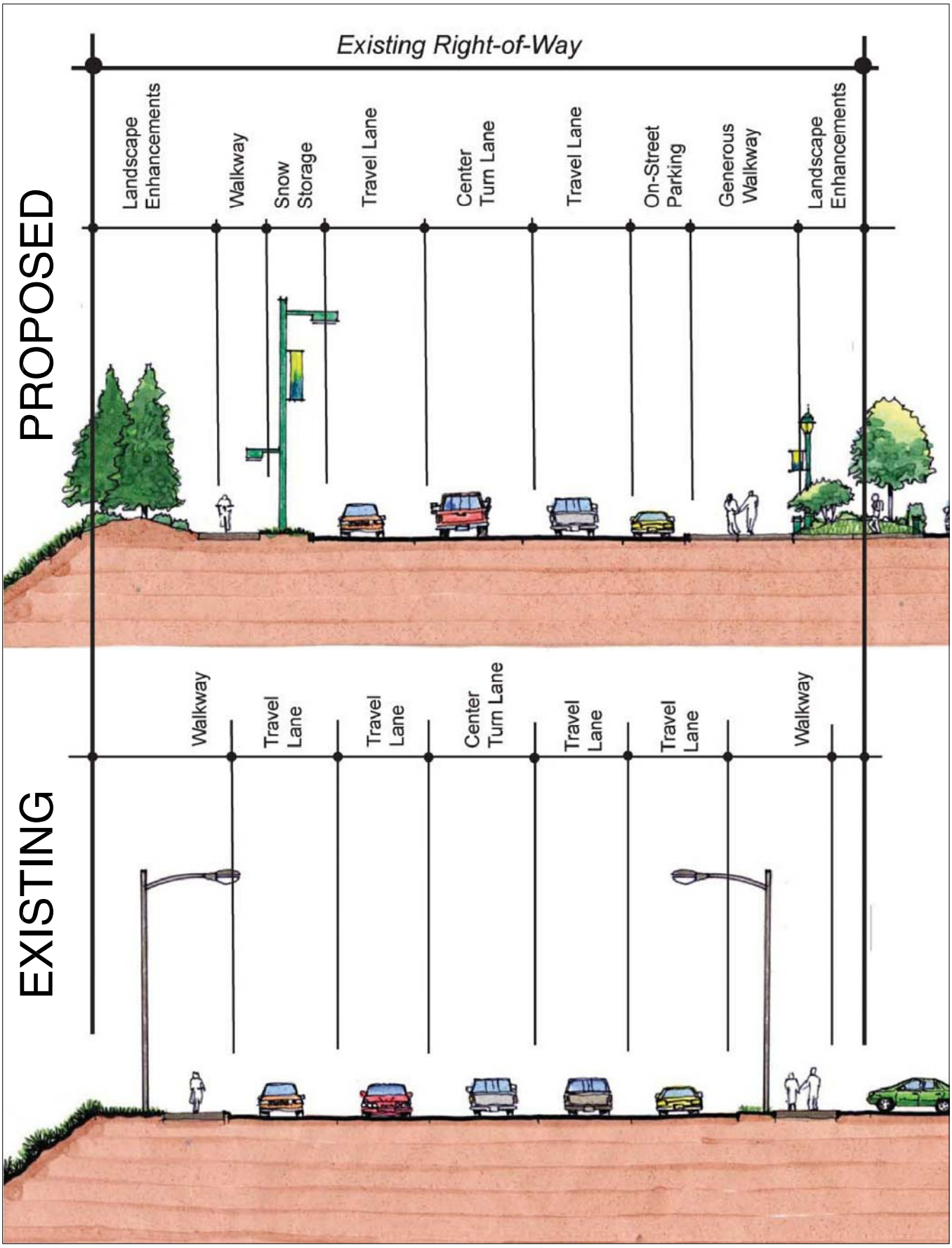

CONCEPTUAL CROSS SECTION - SOLUTION STRATEGY 3
OLD GLENN HIGHWAY
EAGLE RIVER, ALASKA

FIGURE 9

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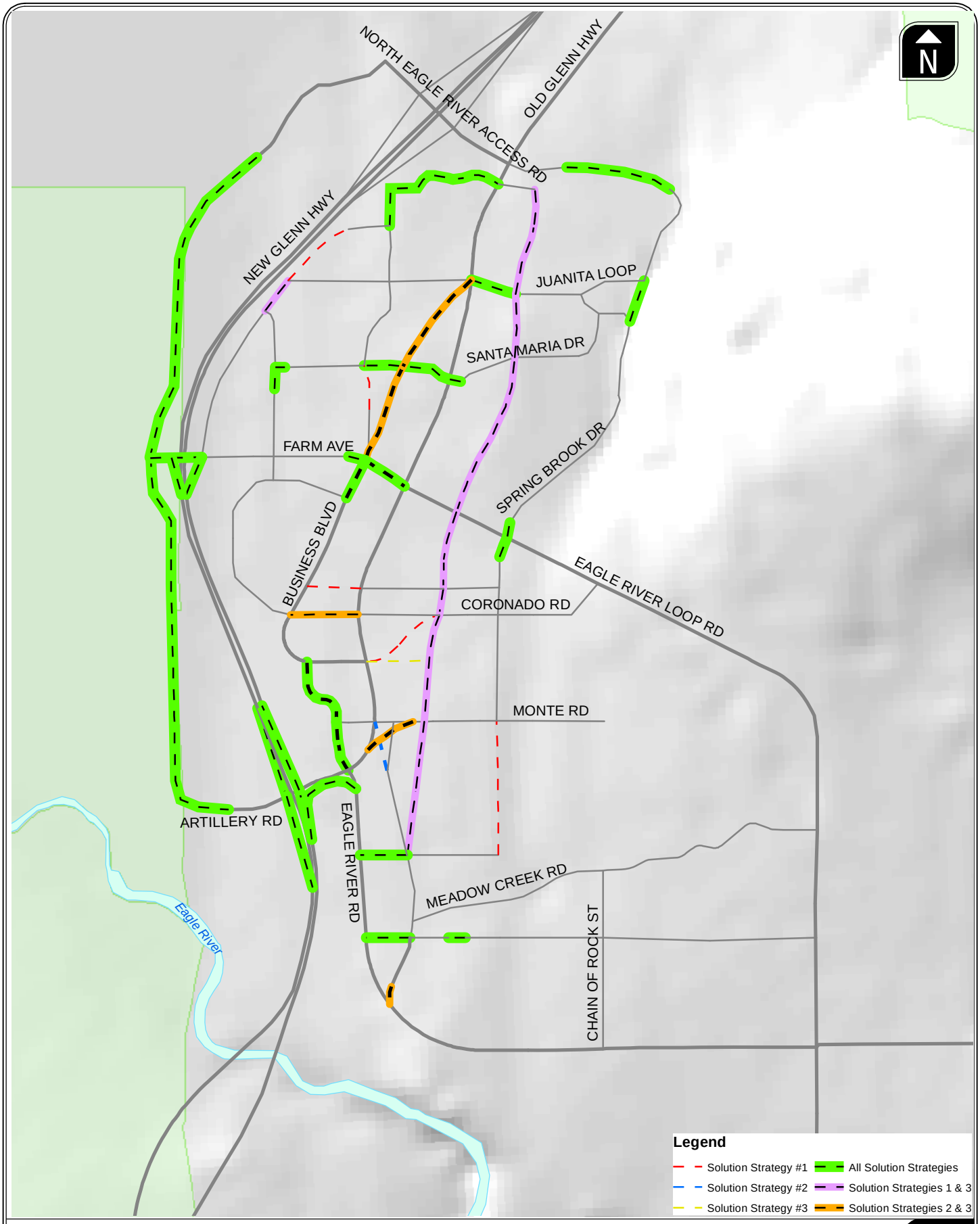
COMMON FEATURES OF THE SOLUTION STRATEGIES

Many specific features are common among two or more of the Solution Strategies. This is largely due to the type of issue a feature is addressing. For example, the lack of continuity in east-west streets has one particularly effective solution and that is to align existing streets to create a continuous route. Figure 10 is an illustration of all three Solution Strategies, highlighting where a feature is common to two or more. Moving forward with an implementation plan that accomplishes these "common features" from the Solution Strategies allows improvements to be made, while preserving the opportunity for the community to later choose any one of the Solution Strategies as the long-term transportation vision for the area.

There are 21 common features among the three "build" Solution Strategies. In all strategies, additional street connections are proposed to enhance circulation and connectivity within the study area. Figure 11 illustrates a generic cross section of what these streets might look like. In residential areas, these streets may or may not have on-street parking or landscaping enhancements. The desire would be for each street to include continuous sidewalks. In commercial areas, these streets are more likely to have the on-street parking and/or the landscaping enhancements. Figure 12 illustrates the location of the common features, and Table 1 summarizes the description and interdependence of each common feature project.



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COMPOSITE OF SOLUTION STRATEGIES
EAGLE RIVER, ALASKA

FIGURE
10

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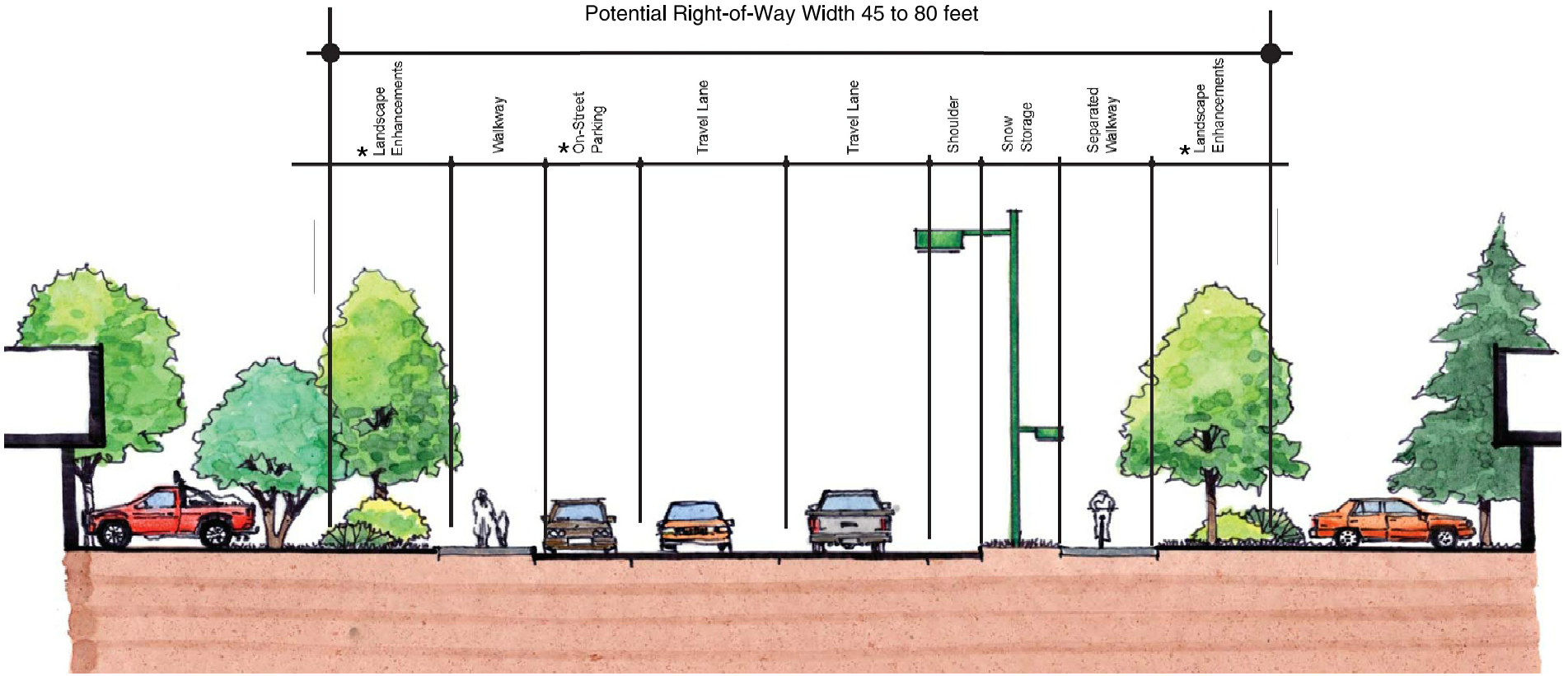
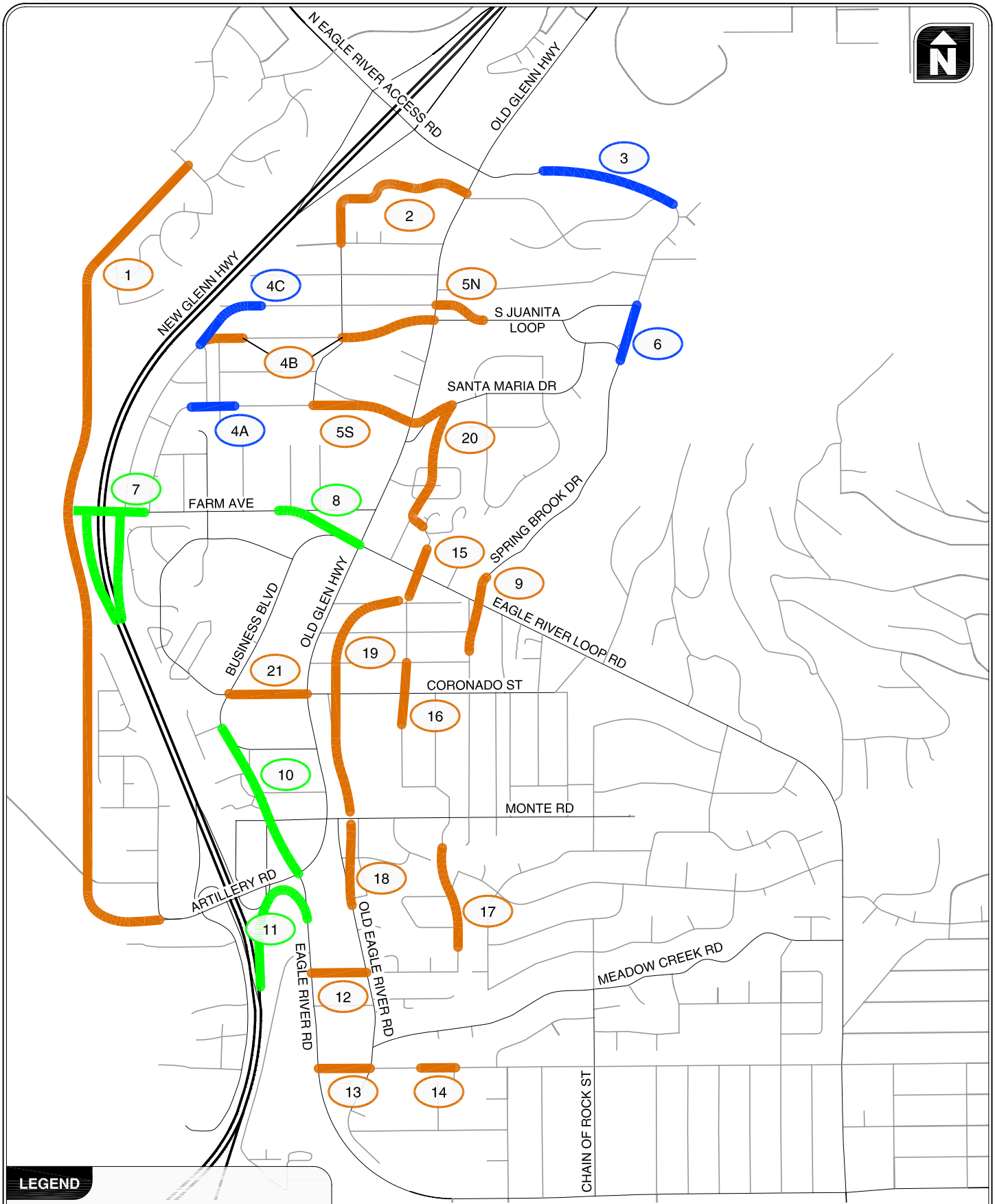


* OPTIONAL TREATMENT

CONCEPTUAL CROSS SECTION - COLLECTOR STREETS
EAGLE RIVER, ALASKA

FIGURE 11



NOTE: NUMBERS REFER EXCLUSIVELY TO PROJECT DESCRIPTIONS AND DO NOT REFLECT PRIORITIZATION OR RELATIVE IMPORTANCE.

COMMON FEATURES & PRIORITIZATION
EAGLE RIVER, ALASKA

FIGURE 12

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Feature Descriptions

Table 1
Common Features – Description and Comments

Feature	Description	Comments
1	• N/S Collector west of Glenn Highway	• May be related to Feature 7 & 8. Provides additional N/S connectivity between existing interchanges. If a partial interchange is constructed at Farm Avenue, may have additional benefit. • Impacts property not controlled by MOA or ADOT&PF. Need to determine if right-of-way even exists for this road.
2	• Strengthen connection from Snowmobile Lane to Iris Avenue	• Localized issue of making left-turns onto/from the Old Glenn Highway • Safety/operations issues can be resolved by restricting Snowmobile Lane to right-in/right-out; however, this restriction increases importance of proposed connection to Iris and Feature 5N (circulation and emergency vehicle access to Medical Center). • There are special limitations in place by Assembly resolution that would need to be addressed if/when this project moves ahead.
3	• New collector street connection from Beaujolais Drive to Northgate Drive	• Local circulation/connectivity improvement. • Dependent on Feature 6 to be more attractive. May be difficult to construct due to slope/grade issues.
4A	• Connect Davis Street to Crested Butte Drive	• Local circulation/connectivity improvement. Emergency response improvement. • Project importance changes if partial interchange to Glenn Highway at Farm Avenue (Feature 7) is constructed.
4B	• Connect Breckenridge Drive to Marcus Street and extend Marcus Street to Old Glenn to align with S Juanita Loop	• Local circulation/connectivity improvement. Emergency response improvement. • Project importance changes if partial interchange to Glenn Highway at Farm Avenue (Feature 7) is constructed.
4C	• Extend Breckenridge Drive north to connect into Eleonora Street	• Local circulation/connectivity improvement. Emergency response improvement. • Project importance changes if partial interchange to Glenn Highway at Farm Avenue (Feature 7) is constructed.
5N	• Align Eleonora Street and S Juanita Loop as a 4-leg intersection on Old Glenn Highway	• Reduces number of offset intersections on Old Glenn Highway • Improves opportunity to progress traffic along Old Glenn Highway by introducing more regular signal spacing intervals • Enhances pedestrian connectivity and crossing opportunities of the Old Glenn Highway

Table 1 (Cont.)
Common Features – Description and Comments

Feature	Description	Comments
5S	• Extend Davis Street east to Schroeder Drive and align with Santa Maria Drive as a 4-leg intersection on Old Glenn Highway	• Reduces number of offset intersections on Old Glenn Highway • Improves opportunity to progress traffic along Old Glenn Highway by introducing more regular signal spacing intervals • Enhances pedestrian connectivity and crossing opportunities of the Old Glenn Highway
6	• Connect Spring Brook Drive to Beaujolais Drive	• Local circulation/connectivity improvement
7	• Partial interchange to Farm Avenue of the Glenn Highway (could include an overcrossing to a N/S collector on the west side of the Glenn Highway)	• Relies heavily on Feature 8 – would need to be built after or simultaneously with Feature 8 to realize desired benefit • If Feature 1 is not feasible, then this improvement would just be a partial interchange to the Glenn Highway.
8	• Realignment of Farm Avenue with Eagle River Loop Road	• Eliminates closely spaced intersection and left-turn conflicts – safety and operational improvements • Has even higher value when Feature 7 is feasible – recommend simultaneous design/construction with Feature 7.
9	• Realign Aurora Street and Spring Brook Drive as a 4-leg intersection on Eagle River Loop Road	• Eliminates negative offset of left-turns on Eagle River Loop Road • Reinforces good intersection design principles (improves signal spacing)
10	• Extension of Business Boulevard south to Eagle River Road	• All Solution Strategies rely on this improvement
11	• Direct-access ramp from Glenn Highway northbound off-ramp to Eagle River Road southbound	• Eliminates existing weaving section between the existing Artillery Road interchange northbound ramp terminal and the Eagle River Road intersection on Old Glenn Highway. • Provides additional capacity to a heavy demand movement
12	• New east-west street connection (extends existing Briggs Road from Old Eagle River Road west to Eagle River Road)	• Local circulation/connectivity improvement
13	• New east-west street connection (extends existing Baronoff Road from Old Eagle River Road west to Eagle River Road)	• Local circulation/connectivity improvement • If Feature 14 doesn't happen/can't happen, realign connection to Meadow Creek Drive to maximize connectivity • (Solution Strategies 2 & 3 need this connection)
14	• Complete Baronoff Road connection to create contiguous east-west road	• Local circulation/connectivity improvement • If this happens before Feature 13, construct Feature 13 as shown.

Table 1 (Cont.)
Common Features – Description and Comments

Feature	Description	Comments
15	• Realign Lazy Street and Horseshoe Drive as a 4-leg intersection at Eagle River Loop Road	• Eliminates offset intersections • Reinforces good intersection design principles • Creates opportunity for a N/S Collector. If project advanced, the Official Streets and Highway Plan (OSHP) should be amended to include this connector.
16	• Realign Lazy Street and Lower Sunny Circle as a 4-leg intersection at Coronado Road	• Eliminates offset intersections • Reinforces good intersection design principles • Creates opportunity for a better N/S connector.
17	• Construct a N/S connection from Upper Sunny Circle to Kantishna Drive south of Monte Road	• N/S Collector east of the Old Glenn Highway
18	• Realign Old Eagle River Road to intersection Monte Road further east and increase intersection spacing to Old Glenn Highway	• Addresses operational and safety issues of existing closely-spaced intersections • Creates a full block of commercial development potential through this section of the downtown core • Creates opportunity for a N/S Collector. If project advanced, the OSHP should be amended to include this connector. • Required for Solution Strategies 2 & 3 (to improve intersection spacing with realigned Artillery Road → Monte Road and accommodate couplet operation).
19	• Construct a N/S parallel street connection east of Old Glenn Highway from Monte Road to Eagle River Loop Road	• Creates a full block of commercial development potential through this section of the downtown core • Creates opportunity for a N/S Collector. If project advanced, the OSHP should be amended to include this connector.
20	• Construct a N/S parallel street connection east of Old Glenn Highway from Horseshoe Drive to Santa Maria Drive	• Creates a full block of commercial development potential through this section of the downtown core • Creates opportunity for a N/S Collector. If project advanced, the OSHP should be amended to include this connector.
21	• Extension of Coronado Road west to Regency Drive at Business Boulevard	• Creates additional east-west multi-modal crossing of Old Glenn Highway in central business district • Improves opportunity to progress traffic along Old Glenn Highway by introducing more regular signal spacing intervals

Issues Addressed

The common features address the primary transportation system deficiencies identified in both the existing and future performance evaluation described in the previous sections. Table 2 indicates the system performance characteristic that each feature provides to enhance the existing and future network.

Table 2
System Performance of Common Features

Feature Description	Number
New north/south street west of Glenn Highway	1
Local connections	2, 3, 4, 6, 9, 12, 13, 14 & 17
Regularly spaced, full movement intersections	5, 15, 16, 18 & 21
Farm Avenue overcrossing of the Glenn Highway	7
Farm Avenue to Eagle River Loop Road connection	8
Business Boulevard to Eagle River Road extension	10
"Slip Ramp" – NB Glenn Highway to Eagle River Road	11
New north/south street east of Glenn Highway	19 & 20

The result of the implementation of the common features will be a connected and efficient multi-modal transportation system in the central business district and residential core of Eagle River. The Old Glenn Highway would still serve as the primary north-south roadway, but dependency on the Old Glenn Highway for all north-south movements would be reduced by Business Boulevard to the west and a new roadway to the east.

There will be at least six signalized locations along Old Glenn Highway between Eagle River Road and the North Eagle River Access Road for safer pedestrian, bicycle, and vehicle crossings. Coordination of these signals along Old Glenn Highway will provide for more efficient flows through the area. In addition, the signalized intersections will provide for much better emergency vehicle response times for the surrounding residential neighborhoods and commercial areas.

Common Feature Cost Estimates

Preliminary planning-level cost estimates for the construction of the 21 common features were prepared by the Alaska Department of Transportation & Public Facilities traffic and preliminary design staff. The cost estimates are comprehensive and are inclusive of planning, design, right-of-way, environmental documentation, and construction costs. For conservative purposes, a range of cost is provided by project to emphasize the preliminary nature of the estimate and the potential for efficiencies and/or unknown additional costs. Table 3 summarizes the preliminary planning-level cost estimate for each of the common features.

Table 3
Common Features – Description and Cost Estimate

Feature	Description	Cost Estimate	
		Low	High
1	• N/S Collector west of Glenn Highway	$15,000,000	$22,500,000
2	• Strengthen connection from Snowmobile Lane to Iris Avenue	$3,500,000	$6,000,000
3	• New collector street connection from Beaujolais Drive to Northgate Drive	$4,000,000	$6,500,000
4A	• Connect Davis Street to Crested Butte Drive	$750,000	$1,500,000
4B	• Connect Breckenridge Drive to Marcus Street and extend Marcus Street to Old Glenn to align with S Juanita Loop	$3,250,000	$6,000,000
4C	• Extend Breckenridge Drive north to connect into Eleonora Street	$2,500,000	$4,000,000
5N	• Align Eleonora Street and S Juanita Loop as a 4-leg intersection on Old Glenn Highway	$1,000,000	$2,000,000
5S	• Extend Davis Street east to Schroeder Drive and align with Santa Maria Drive as a 4-leg intersection on Old Glenn Highway	$3,500,000	$5,500,000
6	• Connect Spring Brook Drive to Beaujolais Drive	$2,000,000	$3,500,000
7	• Partial interchange to Farm Avenue of the Glenn Highway (could include an overcrossing to a N/S collector on the west side of the Glenn Highway)	$20,000,000	$27,500,000
8	• Realignment of Farm Avenue with Eagle River Loop Road	$4,000,000	$6,500,000
9	• Realign Aurora Street and Spring Brook Drive as a 4-leg intersection on Eagle River Loop Road	$1,500,000	$2,500,000
10	• Extension of Business Boulevard south to Eagle River Road	$6,500,000	$10,000,000
11	• Direct-access ramp from Glenn Highway northbound off-ramp to Eagle River Road southbound	$10,000,000	$13,500,000
12	• New east-west street connection (extends existing Briggs Road from Old Eagle River Road west to Eagle River Road)	$2,000,000	$3,500,000
13	• New east-west street connection (extends existing Baronoff Road from Old Eagle River Road west to Eagle River Road)	$2,000,000	$3,500,000
14	• Complete Baronoff Road connection to create contiguous east-west road	$1,500,000	$3,000,000
15	• Realign Lazy Street and Horseshoe Drive as a 4-leg intersection at Eagle River Loop Road	$1,000,000	$2,000,000
16	• Realign Lazy Street and Lower Sunny Circle as a 4-leg intersection at Coronado Road	$1,500,000	$2,500,000
17	• Construct a N/S connection from Upper Sunny Circle to Kantishna Drive south of Monte Road	$2,250,000	$4,500,000
18	• Realign Old Eagle River Road to intersection Monte Road further east and increase intersection spacing to Old Glenn Highway	$2,500,000	$4,000,000
19	• Construct a N/S parallel street connection east of Old Glenn Highway from Monte Road to Eagle River Loop Road	$5,500,000	$8,500,000
20	• Construct a N/S parallel street connection east of Old Glenn Highway from Horseshoe Drive to Santa Maria Drive	$3,250,000	$5,500,000
21	• Extension of Coronado Road west to Regency Drive at Business Boulevard	$2,000,000	$4,000,000

Common Features Priorities

Due to the large number of common features, it is anticipated that they will be implemented over at least a ten year period. To make sure that they are constructed in an orderly fashion that will produce the most system-wide benefits for the community, it is helpful to understand the level of importance, interdependency and their potential impacts to the Solution Strategies of the common features.

Level of Importance

The common features were evaluated by their ability to meet the guiding principles for this project. How well the common feature enhanced the multi-modal performance and provided system-wide circulation improvements were the highest weighted evaluation criteria. Other evaluation criteria included how well the common feature contributed to improvements for the safety and operations and whether they promoted new development. Based upon the quantitative scores (see Attachment A), the common features were grouped into three level of importance categories – High, Medium and Low. Table 4 shows the level of importance for each of the common features.

Table 4
Common Features – Description and Level of Importance

Feature	Description	Level of Importance
7	• Partial interchange to Farm Avenue of the Glenn Highway (could include an overcrossing to a N/S collector on the west side of the Glenn Highway)	High
8	• Realignment of Farm Avenue with Eagle River Loop Road	High
10	• Extension of Business Boulevard south to Eagle River Road	High
11	• Direct-access ramp from Glenn Highway northbound off-ramp to Eagle River Road southbound	High
1	• N/S Collector west of Glenn Highway	Medium
2	• Strengthen connection from Snowmobile Lane to Iris Avenue	Medium
4B	• Connect Breckenridge Drive to Marcus Street and extend Marcus Street to Old Glenn to align with S Juanita Loop	Medium
5N	• Align Eleonora Street and S Juanita Loop as a 4-leg intersection on Old Glenn Highway	Medium
5S	• Extend Davis Street east to Schroeder Drive and align with Santa Maria Drive as a 4-leg intersection on Old Glenn Highway	Medium
9	• Realign Aurora Street and Spring Brook Drive as a 4-leg intersection on Eagle River Loop Road	Medium
12	• New east-west street connection (extends existing Briggs Road from Old Eagle River Road west to Eagle River Road)	Medium
13	• New east-west street connection (extends existing Baronoff Road from Old Eagle River Road west to Eagle River Road)	Medium
14	• Complete Baronoff Road connection to create contiguous east-west road	Medium
15	• Realign Lazy Street and Horseshoe Drive as a 4-leg intersection at Eagle River Loop Road	Medium
16	• Realign Lazy Street and Lower Sunny Circle as a 4-leg intersection at Coronado Road	Medium
17	• Construct a N/S connection from Upper Sunny Circle to Kantishna Drive south of Monte Road	Medium
18	• Realign Old Eagle River Road to intersection Monte Road further east and increase intersection spacing to Old Glenn Highway	Medium
19	• Construct a N/S parallel street connection east of Old Glenn Highway from Monte Road to Eagle River Loop Road	Medium
20	• Construct a N/S parallel street connection east of Old Glenn Highway from Horseshoe Drive to Santa Maria Drive	Medium
21	• Extension of Coronado Road west to Regency Drive at Business Boulevard	Medium
3	• New collector street connection from Beaujolais Drive to Northgate Drive	Low
4A	• Connect Davis Street to Crested Butte Drive	Low[1]
4C	• Extend Breckenridge Drive north to connect into Eleonora Street	Low[1]
6	• Connect Spring Brook Drive to Beaujolais Drive	Low

[1] Becomes “Medium” if partial interchange to the Glenn Highway at Farm Avenue (Feature 7) is constructed.

Interdependence and Timing Issues

Some of the common features are inter-related to the other features and their construction must be completed first so the other work together as a system and minimize impacts to the surrounding residents and businesses. The common features that are inter-related are as follows:

- The extension of Business Boulevard (Feature #10) has been identified as the highest priority common feature. Its construction will be a new gateway for improved access to and from the CBD. This new connection would allow residents traveling on Eagle River Road to cross Old Glenn Highway/Artillery Road and have direct access to and from the CBD. However, if the Glenn Highway/Artillery interchange is not rebuilt prior to the construction of the Business Boulevard extension, there will not be enough distance for an exclusive eastbound left turn lane on Artillery Road to turn onto the new extension of Business Boulevard. Therefore, the left turn movement would be prohibited until the interchange is reconstructed.
- The realignment of Farm Avenue with Eagle River Loop Road (Feature #8) needs to be completed before the Farm Avenue partial interchange (Feature #7) is completed.
- The direct access ramp from northbound Glenn Highway to southbound Eagle River Road (Feature #11) could be accomplished prior to the reconstruction of the Glenn Highway/Artillery interchange project. However, its design should be accomplished with the ultimate new interchange in mind to minimize the overall costs and impacts to the surrounding properties.
- The realignment of the east-west streets along the Old Glenn Highway between Eagle River Loop Road and North Eagle River Access Road (Features #5N and #5S) will provide safer and more efficient multi-modal access and crossings. There are two new signalized intersections being recommended for this section of Old Glenn Highway. The two locations should be constructed simultaneously in order to provide a consistent urban treatment and better signal progression along the Old Glenn Highway.
- The realignment of Juanita Loop to match Eleonora Street at the Old Glenn Highway (Feature #5N) and the extension of Marcus Street to match Juanita Loop at the Old Glenn Highway (Feature #4B) accomplish the same system connection function. Only one of them needs to be constructed. A refinement design study will be needed to determine which alignment works best.
    - If Feature #5N is ultimately selected, then Breckenridge Drive should be extended to Eleonora Street (Feature #4C) to provide improved multi-modal connectivity and emergency response access for the surrounding residential area.
    - If Feature #4B is ultimately selected, then Davis Street should be connected to Crested Butte Drive (Feature #4A) to provide improved multi-modal connectivity and emergency response access for the surrounding residential area.
- The extension of Davis Street and realignment with Santa Maria Drive to create a signalized intersection (Feature #5S) is coupled with the connection of Davis Street

to Crested Butte Drive (Feature #4A) to provide improved multi-modal connectivity and emergency response access for the surrounding residential area.

Impact to Solution Strategies

While the implementation of the common features moves forward to serve as the foundation of the future transportation system in the Eagle River core area, it is the project team's recommendation that the community continue its discussion to determine which long term solution strategy best serves them in the long term. The solution strategies presented in this report complement the Downtown Revitalization Plan vision and the resulting Eagle River Overlay District land use plan. However, more detailed analysis is required before the community will be ready to make a definitive decision on which long term transportation solution strategy to move forward. A Phase II study is being proposed to continue the community's dialogue about which of the Solution Strategies to implement. This follow-up study is estimated to cost about $500,000 and should include the following general scope of tasks:

- Public Participation Plan
- Refinement of Solution Strategy elements – roadway cross-sections, alignments, multi-modal elements, and right-of-way requirements
- Identification of opportunities and constraints, including research on impacts of one-way couplets and "main street" conversions in other communities
- Development of evaluation criteria
- Evaluation of the three Solution Strategies,
- Selection of a Preferred Solution Strategy, and
- Development of Implementation Plan, including project funding and construction programming.

It will be important to conduct this more detailed study of the Solution Strategies in conjunction with the implementation of the Common Features Program described in the following section. The timing of the community's decision to select a preferred Solution Strategy will influence the design and construction of the common features.

The preliminary and final design and the ultimate construction of the common features need to take into account their impacts on the three Solution Strategies. This is especially important during the development of the high priority common features (#7, #8, #10, #11, #18 and #19) as their design will need to be flexible to accommodate the community decision on a preferred Solution Strategy.

Common Features Program (Timing and Phasing)

With the large number of Common Features that have been identified to help solve the existing and future transportation system deficiencies in the Eagle River CBD and residential core area, it will be necessary to create a phased program of improvements over at least the next ten years. A ten year period seems to be a reasonable time period considering the potential funding sources and construction timing issues.

Funding for the common features is likely to come from State/Federal, local (Chugiak-Birchwood-Eagle River Rural Road Service District), and developers. Common Features #7 and #11 will be the responsibility of State/Federal funding as they are projects related to the performance and operation of the Glenn Highway. Common Feature #1 will be necessary to accommodate future development on the west side of the Glenn Highway. The remainder of the Common Features is likely to be constructed with local funds.

Based upon these funding assumptions a recommended Common Features Program has been developed and is shown in Table 5.

Table 5
Common Features Program – Timing & Phasing

Feature	Level of Importance	Cost Estimate (Low)	Cost Estimate (High)	Phasing
Locally Funded Features				
10	High	$6,500,000	$10,000,000	1
8	High	$4,000,000	$6,500,000	3
21	Medium	$2,000,000	$4,000,000	5
4B[1]	Medium	$3,250,000	$6,000,000	6
5N[2]	Medium	$1,000,000	$2,000,000	6
5S	Medium	$2,500,000	$4,000,000	6
4A	Low	$3,500,000	$5,500,000	7
4C[2]	Low	$750,000	$1,500,000	7
2	Medium	$3,500,000	$6,000,000	8
18	Medium	$2,500,000	$4,000,000	9
19	Medium	$5,500,000	$8,500,000	10
9	Medium	$1,500,000	$2,500,000	11
15	Medium	$1,000,000	$2,000,000	12
16	Medium	$1,500,000	$2,500,000	13
20	Medium	$3,250,000	$5,500,000	15
17	Medium	$2,250,000	$4,500,000	16
12	Medium	$2,000,000	$3,500,000	17
13	Medium	$2,000,000	$3,500,000	18
14	Medium	$1,500,000	$3,000,000	19
3	Low	$4,000,000	$6,500,000	20
6	Low	$2,000,000	$3,500,000	21
Sub-total		**$56,000,000**	**$95,000,000**	
State/Federal and Developer-funded Features				
11	High	$10,000,000	$13,500,000	2
7	High	$20,000,000	$27,500,000	4
1	Medium	$15,000,000	$22,500,000	14
Sub-total		**$45,000,000**	**$63,500,000**	
Total		**$101,000,000**	**$158,500,000**	

[1] Cost estimate assumes Feature #4B is constructed in lieu of Features #5N and #4C.
[2] Cost estimate assumes Features #5N and #4C are constructed in lieu of Feature #4B.

FINDINGS/RECOMMENDATIONS

This study has continued the conversation with the community about the future of the Eagle River Central Business District and Residential Core area. The technical transportation system

analysis conducted during this study and the resulting discussions with key stakeholders and interested citizens in the Eagle River area has highlighted the importance of two major components of the future transportation system in the Eagle River Central Business District and Residential Core area. Additional regional transportation system improvements are essential for moving people and goods into and from Eagle River **and** the arterial, collector, and local roadway system within the core area needs to be completed. The future system cannot be fixed by relying upon only one of these components.

The regional transportation system improvements include the following:

- Glenn Highway/Artillery interchange needs to be rebuilt, including increased spacing for Artillery intersections with Eagle River Road/Business Boulevard extension and Monte Road,
- New partial interchange on Glenn Highway at Farm Avenue,
- Glenn Highway HOV Lanes (Boniface to S. Peters Creek),
- Improved multi-modal connections across Glenn Highway at Artillery and North Eagle River interchanges, and
- Better transit and car/vanpool options for Eagle River-Chugiak area residents, especially for work-related trips to/from Anchorage and military bases.

Improvements to the arterial, collector, and local roadway system in the downtown and residential core of Eagle River are to address the following issues:

- Provide more multi-modal, controlled intersections on Old Glenn Highway,
- Provide coordinated, smoother and slower speeds on Old Glenn Highway,
- Complete collector street system to improve connectivity and emergency response times to residential and commercial areas, and
- Provide alternative multi-modal connections to residential neighborhoods.

This study has focused on identifying the necessary transportation system improvements for the arterial, collector, and local roadway system to serve the Eagle River community for many years to come. It has resulted in the development of three conceptual and feasible Solution Strategies to address the long term transportation system needs within the study area. While there was no general consensus of which Solution Strategy to move forward, there was strong community agreement towards moving forward with refinement of the 21 common features that address the major operational and safety concerns in the area. The common features will serve as the foundation of the future transportation system in the central business district and residential core of Eagle River.

A reasonable and feasible implementation plan has been developed to accomplish the 21 common features. Completion of these projects does not dictate the need for a change in street classification; however, further study may identify the benefits of classification changes. It is anticipated that a combination of local road funding and Legislative funding for capital projects could complete these projects in about ten years. The recommended Common Features Program is summarized in Table 6.

Table 6
Common Features Program – Action Plan

Feature	Level of Importance	Cost Estimate (Low)	Cost Estimate (High)	Phasing
Locally Funded Features				
10	High	$6,500,000	$10,000,000	1
8	High	$4,000,000	$6,500,000	3
21	Medium	$2,000,000	$4,000,000	5
4B[1]	Medium	$3,250,000	$6,000,000	6
5N[2]	Medium	$1,000,000	$2,000,000	6
5S	Medium	$2,500,000	$4,000,000	6
4A	Low	$3,500,000	$5,500,000	7
4C[2]	Low	$750,000	$1,500,000	7
2	Medium	$3,500,000	$6,000,000	8
18	Medium	$2,500,000	$4,000,000	9
19	Medium	$5,500,000	$8,500,000	10
9	Medium	$1,500,000	$2,500,000	11
15	Medium	$1,000,000	$2,000,000	12
16	Medium	$1,500,000	$2,500,000	13
20	Medium	$3,250,000	$5,500,000	15
17	Medium	$2,250,000	$4,500,000	16
12	Medium	$2,000,000	$3,500,000	17
13	Medium	$2,000,000	$3,500,000	18
14	Medium	$1,500,000	$3,000,000	19
3	Low	$4,000,000	$6,500,000	20
6	Low	$2,000,000	$3,500,000	21
Sub-total		**$56,000,000**	**$95,000,000**	
State/Federal and Developer Funded Features				
11	High	$10,000,000	$13,500,000	2
7	High	$20,000,000	$27,500,000	4
1	Medium	$15,000,000	$22,500,000	14
Sub-total		**$45,000,000**	**$63,500,000**	
Total		**$101,000,000**	**$158,500,000**	

[1] Cost estimate assumes Feature #4B is constructed in lieu of Features #5N and #4C.
[2] Cost estimate assumes Features #5N and #4C are constructed in lieu of Feature #4B.

While the implementation of the common features moves forward to serve as the foundation of the future transportation system in the Eagle River core area, it is the project team's recommendation that the community continue its discussion of which long term solution strategy best serves them. The solution strategies presented in this report complement the Downtown Revitalization Plan vision and the resulting Eagle River Overlay District land use plan. However,

more detailed analysis is required before the community will be ready to make a definitive decision on which long term transportation solution strategy to move forward. Such a study may identify the need for or benefit of changes in street classification. A Phase II study is being proposed to continue the community's dialogue about which of the Solution Strategies to implement. This follow-up study would include the following tasks:

- Public Participation Plan
- Refinement of Solution Strategy elements – roadway cross-sections, alignments, multi-modal elements, and right-of-way requirements
- Identification of opportunities and constraints, including research on impacts of one-way couplets and "main street" conversions in other communities
- Evaluation Criteria
- Selection of Strategy
- Development of Implementation Plan, including project funding and construction programming

This combination of implementation of the Common Features Program and the community's decision to move forward with one of the Solution Strategies will provide the citizens of Eagle River an outstanding transportation system to support their vibrant and healthy central business district and residential core area.

REFERENCES

1. Municipality of Anchorage. *Downtown Eagle River Overlay District*. July 2009.

2. Municipality of Anchorage. *Anchorage Bowl Land Use Plan Map*. December 2006.

3. Kittelson & Associates, Inc. *Technical Memorandum #3: Existing Traffic Conditions Analysis*. April 2010.

4. Kittelson & Associates, Inc. *Technical Memorandum #5 Future Deficiencies Analysis*. April 2010.

ATTACHMENTS

Attachment A – Common Feature Evaluation Matrix

Attachment A
Common Feature
Evaluation Matrix

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COMMON FEATURE EVALUATION MATRIX (Page 1 of 3)

Common Features

Rating Scale	Multi-Modal Enhancement	Promotes New Development Potential	Existing Intersection Improvements		Existing Corridor Improvements		Circulation Improvements	Points	Priority
			Operations	Safety	Operations	Safety	Local vs. Systemwide		
0	none (new alignment only, etc.)	No	No	No	No	No	None	3	low
1	improves existing geometry	Yes	Yes	Yes	Yes	Yes	Neighborhood connection	4-9	medium
2	new local connection						Connection of two land uses	10	high
3	new systemwide connection						Major systemwide impact		

Feature	Description	Rank	Comments	Affected Properties		Right-of-Way Acquisition Needed?	Multi-Modal Enhancement	Promotes New Development Potential	Existing Intersection Improvements		Existing Corridor Improvements		Circulation Improvements	Points	Priority
				Commercial	Residential				Operations	Safety	Operations	Safety	Systemwide vs. Local		
1	• N/S Collector west of Glenn Highway	Low	• May be related to Feature 7 & 8. Provides additional N/S connectivity between existing interchanges. If a partial interchange is constructed at Farm Avenue, may have additional benefit. • Impacts property not controlled by MOA or DOT&PF. Need to determine if ROW even exists for this road			TBD	0	0	0	0	0	0	3	3	low
2	• Strengthen connection from Snowmobile Lane to Iris Avenue	High	• Localized issue of making left-turns onto/from the Old Glenn Highway • Safety/operations issues can be resolved by restricting Snowmobile Lane to RIRO; however, this restriction increases importance of proposed connection to Iris and Feature 5N (circulation and emergency vehicle access to Medical Center).		X	No	2	0	1	1	0	0	2	6	medium
3	• New collector street connection from Beaujolais Drive to Northgate Drive	Low	• Local circulation/connectivity improvement. • Dependent on Feature 6 to be more attractive. May be difficult to construct due to slope/grade issues.	X		No	2	0	0	0	0	0	1	3	low
4A	• Connect Davis Street to Crested Butte Drive	Medium	• Local circulation/connectivity improvement. Emergency response improvement. • (Becomes "Medium" if partial interchange to Glenn Highway at Farm is constructed)		X	TBD	1	0	0	0	0	0	1	2	low
4B	• Connect Breckenridge Drive to Marcus Street and extend Marcus Street to Old Glenn to align with S Juanita Loop	Medium	• Local circulation/connectivity improvement. Emergency response improvement. • (Becomes "Medium" if partial interchange to Glenn Highway at Farm is constructed)		X	TBD	2	1	1	1	0	0	2	7	medium
4C	• Extend Breckenridge Drive north to connect into Eleonora Street	Medium	• Local circulation/connectivity improvement. Emergency response improvement. • (Becomes "Medium" if partial interchange to Glenn Highway at Farm is constructed)		X	TBD	1	0	0	0	0	0	2	3	low
5N	• Align Eleonora Street and S Juanita Loop as a 4-leg intersection on Old Glenn Highway	High	• Reduces number of offset intersections on Old Glenn Highway • Improves opportunity to progress traffic along Old Glenn Highway by introducing more regular signal spacing intervals • Enhances pedestrian connectivity and crossing opportunities of the Old Glenn Highway	X	X	TBD	1	0	1	1	0	0	1	4	medium
5S	• Extend Davis Street east to Schroeder Drive and align with Santa Maria Drive as a 4-leg intersection on Old Glenn Highway	High	• Reduces number of offset intersections on Old Glenn Highway • Improves opportunity to progress traffic along Old Glenn Highway by introducing more regular signal spacing intervals • Enhances pedestrian connectivity and crossing opportunities of the Old Glenn Highway	X	X	Yes	2	1	1	1	0	0	2	7	medium
6	• Connect Spring Brook Drive to Beaujolais Drive	Low	• Local circulation/connectivity improvement		X	Yes	1	0	0	0	0	0	1	2	low

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COMMON FEATURE EVALUATION MATRIX (Page 2 of 3)

Rating Scale	Multi-Modal Enhancement	Promotes New Development Potential	Existing Intersection Improvements		Existing Corridor Improvements		Circulation Improvements	Points	Priority
			Operations	Safety	Operations	Safety	Local vs. Systemwide		
0	none (new alignment only, etc.)	No	No	No	No	No	None	3	low
1	improves existing geometry	Yes	Yes	Yes	Yes	Yes	Neighborhood connection	4-9	medium
2	new local connection						Connection of two land uses	10	high
3	new systemwide connection						Major systemwide impact		

Common Features

Feature	Description	Rank	Comments	Affected Properties		Right-of-Way Acquisition Needed?	Multi-Modal Enhancement	Promotes New Development Potential	Existing Intersection Improvements		Existing Corridor Improvements		Circulation Improvements	Points	Priority
				Commercial	Residential				Operations	Safety	Operations	Safety	Systemwide vs. Local		
7	• Partial interchange to Farm Avenue of the Glenn Highway (could include an overcrossing to a N/S collector on the west side of the Glenn Highway)	High	• Relies heavily on Feature 8 – would need to be built after or simultaneously with Feature 8 to realize desired benefit • If Feature 1 is not feasible, then this improvement would just be a partial interchange to the Glenn Highway.		X	Yes	1	1	1	0	1	0	3	7	medium
8	• Realignment of Farm Avenue with Eagle River Loop Road	High	• Eliminates closely spaced intersection and left-turn conflicts – safety and operational improvements • Has even higher value when Feature 7 is feasible – recommend simultaneous design/construction with Feature 7.	X		TBD	2	0	1	1	1	0	2	7	medium
9	• Realign Aurora Street and Spring Brook Drive as a 4-leg intersection on Eagle River Loop Road	Low	• Eliminates negative offset of left-turns on Eagle River Loop Road • Reinforces good intersection design principles (improves signal spacing)			TBD	0	0	1	1	0	0	1	3	low
10	• Extension of Business Boulevard south to Eagle River Road	High	• All Solution Strategies rely on this improvement	X	X	Yes	3	1	1	1	1	1	3	11	high
11	• Direct-access ramp from Glenn Highway northbound off-ramp to Eagle River Road southbound	High	• TOP PRIORITY • Eliminates existing weaving section between the existing Artillery Road interchange northbound ramp terminal and the Eagle River Road intersection on Old Glenn Highway. • Provides additional capacity to a heavy demand movement	X		Yes	0	0	1	1	1	1	3	7	medium
12	• New east-west street connection (extends existing Briggs Road from Old Eagle River Road west to Eagle River Road)	Low	• Local circulation/connectivity improvement		X	Yes	2	0	0	0	1	0	1	4	medium
13	• New east-west street connection (extends existing Baranoff Road from Old Eagle River Road west to Eagle River Road)	Medium (High)	• Local circulation/connectivity improvement • If Feature 14 doesn't happen/can't happen, realign connection to Meadow Creek Drive to maximize connectivity • (Solution Strategies 2 & 3 need this connection)		X	TBD TBD	2	0	0	0	1	0	1 1	4 1	medium low
14	• Complete Baranoff Road connection to create contiguous east-west road	Medium	• Local circulation/connectivity improvement • If this happens before Feature 13, construct Feature 13 as shown.		X	TBD	2	0	0	0	1	0	1	4	medium

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COMMON FEATURE EVALUATION MATRIX (Page 3 of 3)

Rating Scale	Multi-Modal Enhancement	Promotes New Development Potential	Existing Intersection Improvements		Existing Corridor Improvements		Circulation Improvements	Points	Priority
			Operations	Safety	Operations	Safety	Local vs. Systemwide		
0	none (new alignment only, etc.)	No	No	No	No	No	None	3	low
1	improves existing geometry	Yes	Yes	Yes	Yes	Yes	Neighborhood connection	4-9	medium
2	new local connection						Connection of two land uses	10	high
3	new systemwide connection						Major systemwide impact		

Common Features

Feature	Description	Rank	Comments	Affected Properties		Right-of-Way Acquisition Needed?	Multi-Modal Enhancement	Promotes New Development Potential	Existing Intersection Improvements		Existing Corridor Improvements		Circulation Improvements	Points	Priority
				Commercial	Residential				Operations	Safety	Operations	Safety	Systemwide vs. Local		
15	• Realign Lazy Street and Horseshoe Drive as a 4-leg intersection at Eagle River Loop Road	Low	• Eliminates offset intersections • Reinforces good intersection design principles • Creates opportunity for a N/S Collector	X		TBD	1	0	1	1	1		1	5	medium
16	• Realign Lazy Street and Lower Sunny Circle as a 4-leg intersection at Coronado Road	Medium	• Eliminates offset intersections • Reinforces good intersection design principles • Creates opportunity for a N/S Collector		X	TBD	1	0	1	1	1		1	5	medium
17	• Construct a N/S connection from Upper Sunny Circle to Kantishna Drive south of Monte Road	Low	• N/S Collector east of the Old Glenn Highway	X		Yes	2	0	0	0	1		2	5	medium
18	• Realign Old Eagle River Road to intersection Monte Road further east and increase intersection spacing to Old Glenn Highway	Medium	• Addresses operational and safety issues of existing closely-spaced intersections • Creates a full block of commercial development potential through this section of the downtown core • Creates opportunity for a N/S Collector • Required for Solution Strategies 2 & 3 (to improve intersection spacing with realigned Artillery Road → Monte Road and accommodate couplet operation).	X		Yes	2	1	1	1	1	1	2	9	medium
19	• Construct a N/S parallel street connection east of Old Glenn Highway from Monte Road to Eagle River Loop Road	Medium	• Creates a full block of commercial development potential through this section of the downtown core • Creates opportunity for a N/S Collector	X	X	Yes	2	1	1	1	1	1	2	9	medium
20	• Construct a N/S parallel street connection east of Old Glenn Highway from Horseshoe Drive to Santa Maria Drive	Medium	• Creates a full block of commercial development potential through this section of the downtown core • Creates opportunity for a N/S Collector	X		Yes	3	1	1	1	0	0	2	8	medium
21	• Extension of Coronado Road west to Regency Drive at Business Boulevard	Medium	• Creates additional east-west multi-modal crossing of Old Glenn Highway in central business district • Improves opportunity to progress traffic along Old Glenn Highway by introducing more regular signal spacing intervals	X		Yes	2	1	0	1	0	1	2	7	medium