IV. LONG RANGE TRANSPORTATION PLAN

The long range transportation plan was developed from a number of elements including existing conditions, projected growth, public input, and the overall goals and objectives listed in the introduction. This plan provides an outline of recommended projects as well as their timing and an order of magnitude cost. Multi-modal plans for pedestrian, bicycle, and transit are also included to provide a balanced plan that offers alternatives to the automobile. These plans should not be considered static documents but should be reviewed and updated as conditions and basic assumptions change, such as the adoption of a new Comprehensive Plan, changes in forecasted growth, and different goals and objectives expressed by residents.

A. Roadway Plan

Existing streets in Milliken generally operate fairly well with spot areas of congestion during the peak hours (generally 7:00 to 9:00 in the morning and 4:00 to 6:00 in the evening). The Roadway Plan focuses on providing a well planned system of streets for the future. The Roadway Plan shown on **Figure 19** was developed to accommodate future traffic demands as well as to provide continuity and access to developing lands. The plan illustrates the functional classification of each road. These classifications are discussed in more detail later in this section. The Roadway Plan also provides the future laneage requirements for the county roads generally on the mile section lines within the planning area to accommodate the travel demand in 2035. Several new roadway connections have been identified, and some existing roadways will clearly require widening to four lanes over the 27 year planning horizon. Other county roads may not need widening until significant development is realized, which may be beyond the 27 year horizon. In these instances, right-of-way should be preserved for future widening to four lanes.

On **Figure 19**, the first number shown indicates the number of lanes that will be needed in 2035. The second number represents the cross-section of the roadways that would be needed to accommodate buildout of the planning area. The right-of-way designated in the second number could also be for spot widening. For example, if a development were planned and a traffic impact analysis indicated a need for a widened section with turn lanes, such a recommendation would take priority over the 2035 laneage recommendation for that particular section of roadway.

A companion to the Roadway Plan is **Figure 20** which shows the location of intersections that will likely require signalization or roundabouts in the future.

FELSBURG HOLT & ULLEVIG

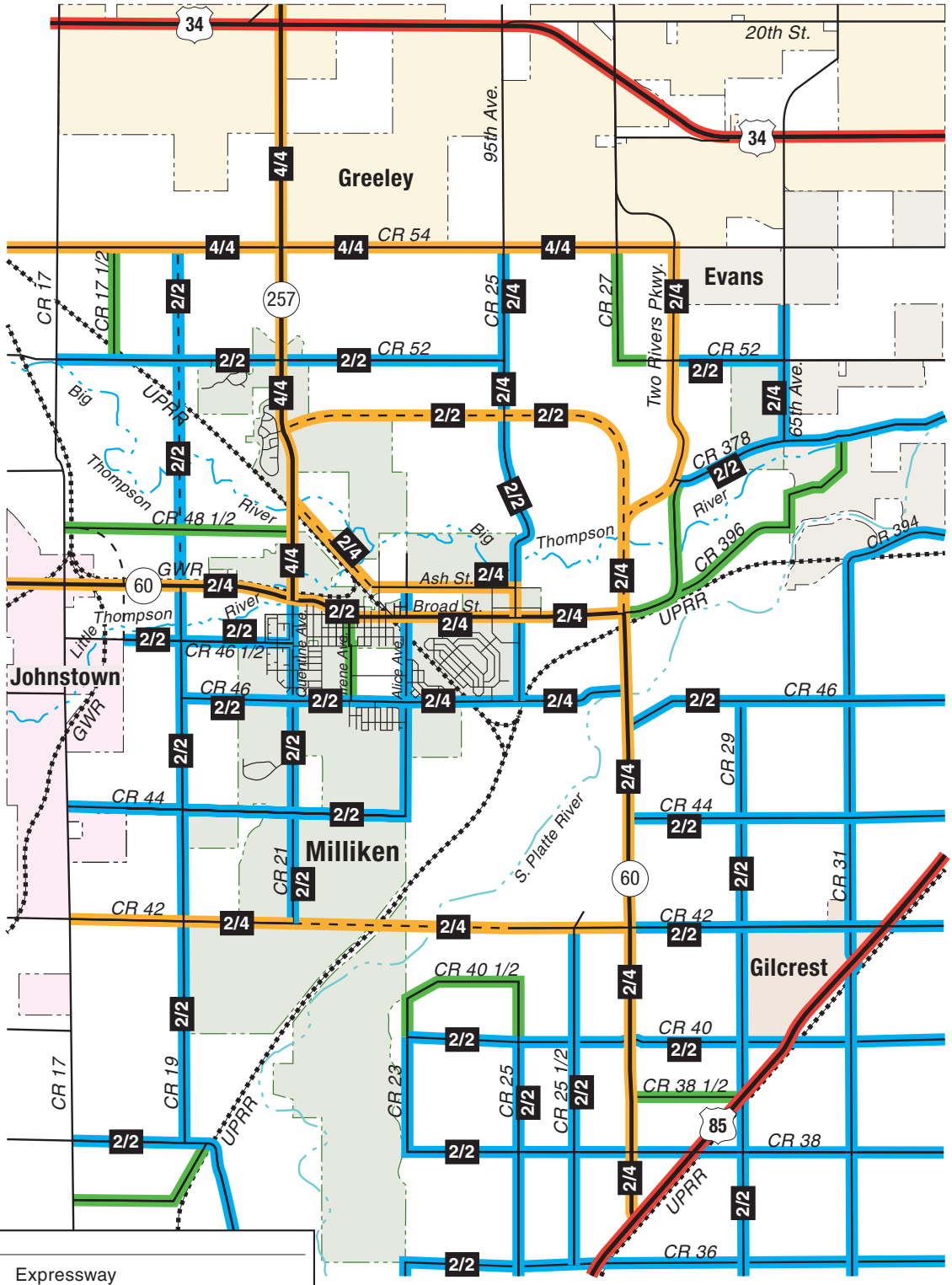
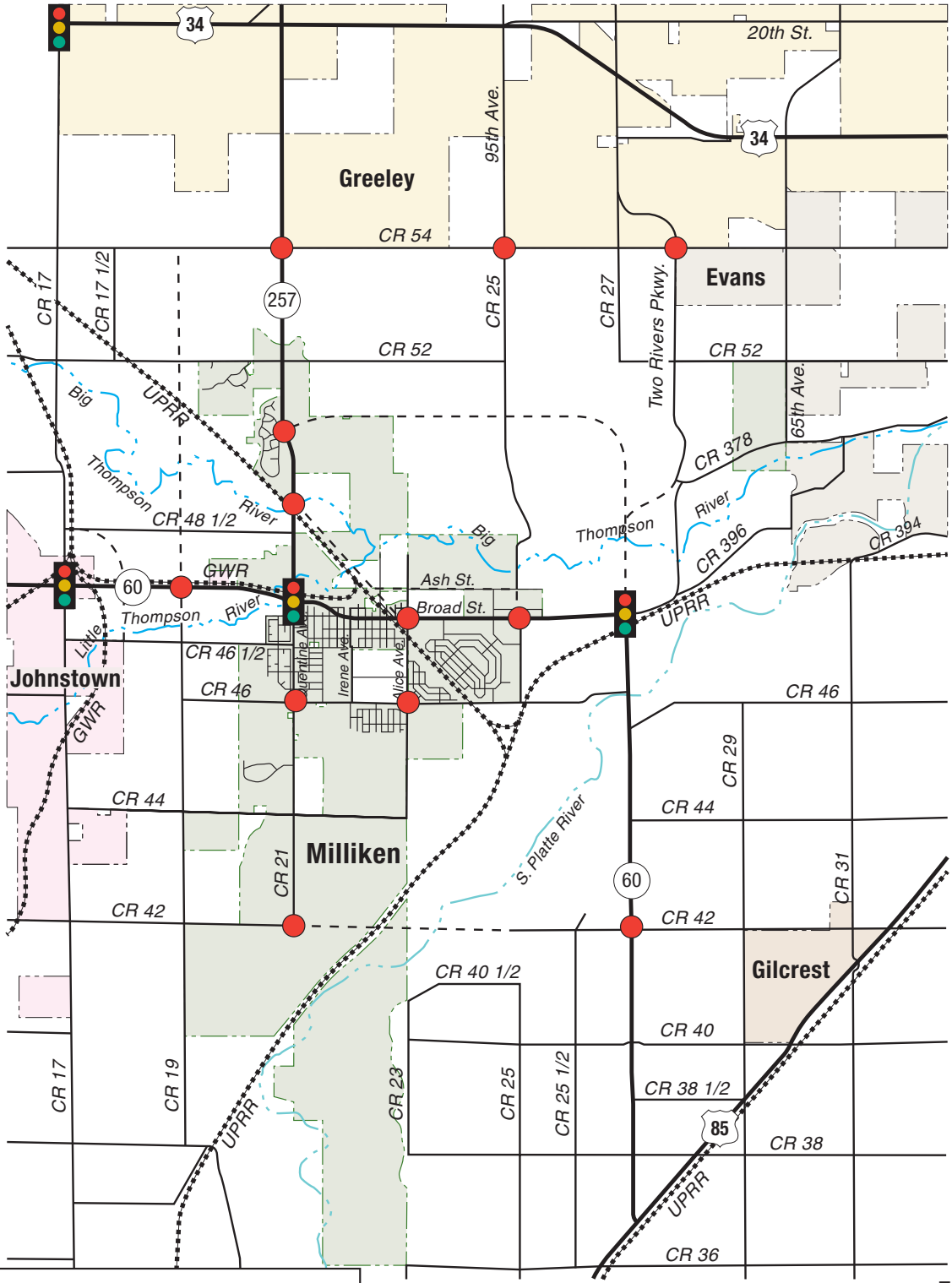


Figure 19

Roadway Plan

FELSBURG HOLT & ULLEVIG



Legend

= Existing Signalized Intersection

= Potential New Signals or Roundabouts

= Future Roadway Connections

North

Figure 20

Potential Signalized Intersections or Roundabouts

Projected Traffic Demand on Improved Network

Figure 21 depicts the projected 2035 traffic on the Roadway Plan. Based on the travel demand modeling results, the improved network should adequately accommodate the 2035 traffic volumes. The travel demand model was run with the buildout land use forecasts and the buildout laneage, and the results are provided on **Figure 22**. With a buildout population in the range of 84,000, many additional roadway improvements will be needed to accommodate this level of growth. A comparison of the 2035 and buildout traffic forecast show significant increases in traffic throughout the planning area.

Functional Classification

Within a roadway system, each road is classified by the relative functional levels of mobility and access assigned to it. The primary function of a roadway is to provide either a high level of mobility (where higher speeds occur and direct land access is restricted) or to provide a high level of accessibility (where speeds are lower and direct land access is emphasized). These two functions, mobility and access, are in conflict; the more access is allowed by a facility, the greater its capacity for mobility is reduced. Freeway, expressways and arterials have the highest levels of mobility but have the greatest restrictions on access. Collectors and local streets serve greater access needs but have reduced capacity for traffic movement. It should be noted that the primary determinants of functional classification are length of trip, average travel speed, frequency of access points, and continuity. Traffic volumes, while often higher on mobility facilities, do not by themselves determine roadway function. It is possible, and frequently the case, that more accessible roadways carry relatively high traffic volumes (e.g. access to major office parks, regional shopping centers, etc.) and require multiple traffic lanes to accommodate the demand. By the same token, a mobility facility, serving relatively long trips at higher speeds between low density land uses may require only two traffic lanes to accommodate the demand.

To further clarify the distinction between the mobility and the accessibility function, the following descriptions of roadway types and **Table 4** present general characteristics for various types of roadway functions:

- ***Freeways*** - Freeways have the highest level of access control. Access is allowed only at grade separated interchanges; no at-grade intersections are allowed. Interchanges are typically at one mile or greater spacing. Freeways allow the highest level of mobility, and provide unimpeded, high speed, high volume regional and interstate connections.
- ***Expressways*** - Expressways have limited access, typically via at-grade intersections at one mile spacing. They are typically unsignalized but can be signalized or made into interchanges where high volumes on the crossroad require. Expressways provide high speed, unimpeded regional connections.
- ***Major Arterials*** - Major arterials should be limited access, typically via signalized or unsignalized, at-grade intersections at one half to one mile spacing. Major arterials provide relatively high speed, unimpeded, town-wide connections. There may be direct access where they pass by existing homes, but future development should provide internal street systems and limit or prohibit individual direct access to the arterial.

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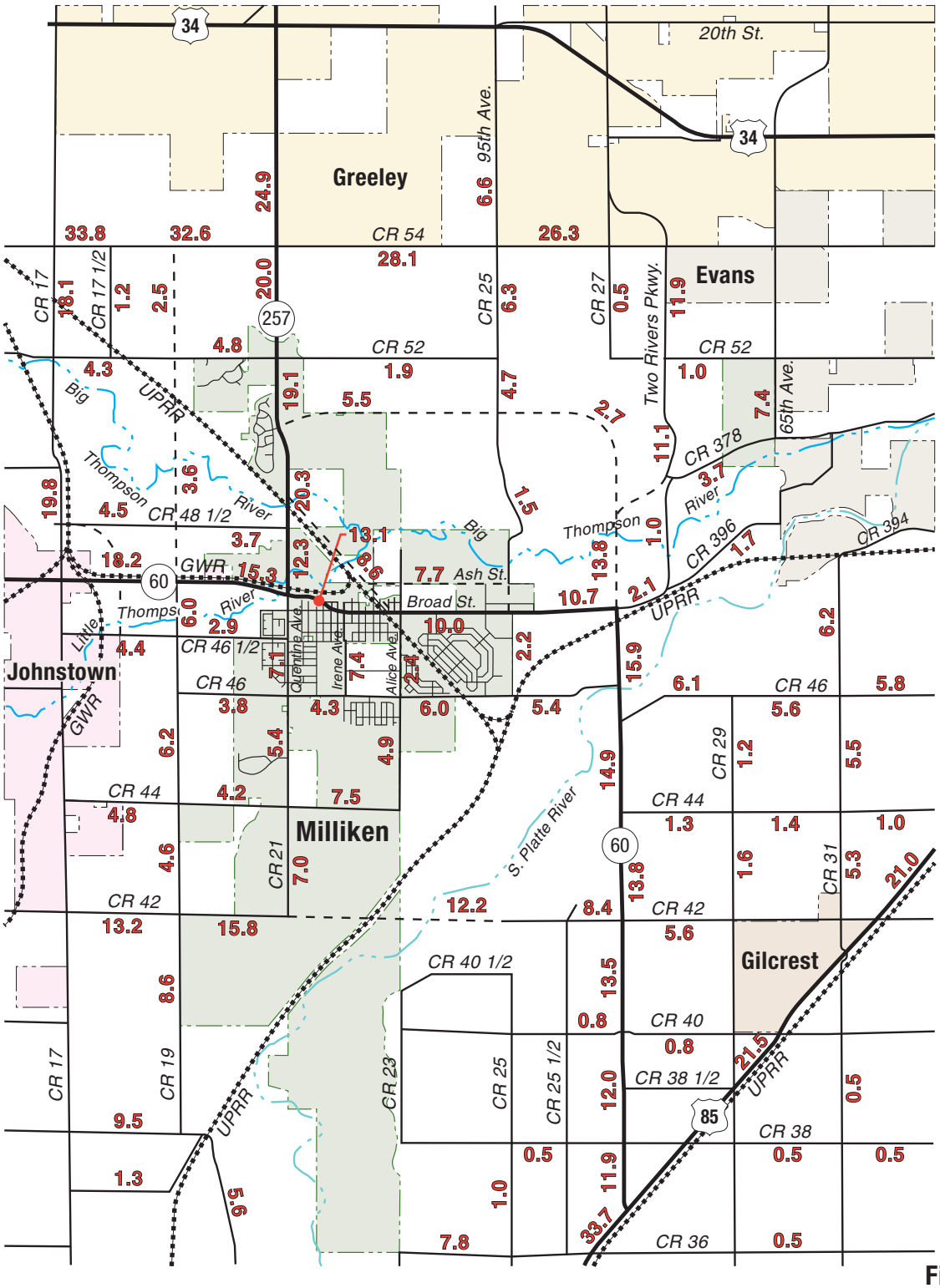

Figure 21

2035 Traffic Forecasts on Recommended Roadway Plan

North

Legend

XX.X = 2035 Daily Traffic Forecasts (in thousands)

– – – = Future Roadway Connections

FELSBURG HOLT & ULLEVIG

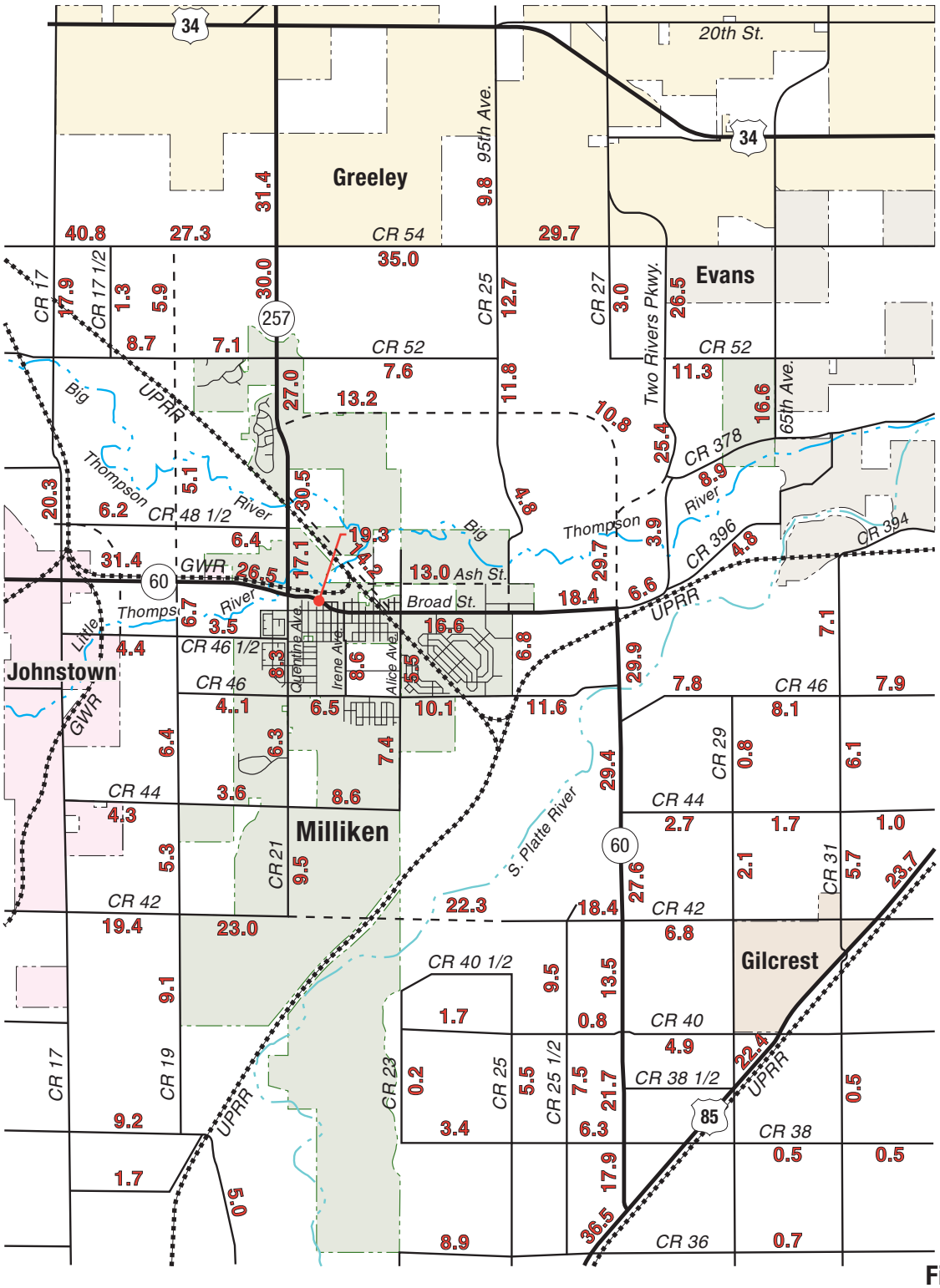

Figure 22

Buildout Traffic Forecasts on Recommended Roadway Plan

Legend

XX.X = Buildout Daily Traffic Forecasts (in thousands)

– – – = Future Roadway Connections

North

- ***Minor Arterials*** - Minor arterials also have limited access, but may provide direct access to properties if no other reasonable form of access exists. Intersections are at-grade and may be signalized. Minor arterials provide relatively unimpeded connections within the community and distribute traffic to higher classification roadways.
- ***Collectors*** - Collectors may provide direct access to abutting properties, but this is not encouraged in residential areas. Intersections are at-grade and typically have some form of traffic control (stop signs). They provide connections between local streets and arterials and usually retain continuity through neighborhoods. Collector streets are typically identified through development plans and thus are not specifically identified in the Roadway Plan.
- ***Local Streets*** - Local streets serve the highest level of access, providing direct driveway access to adjacent properties and carrying traffic to the collectors. Local streets can be of limited continuity and may be designed to discourage through traffic.

Table 4. Functional Classification Criteria and Design Characteristics

Characteristics	Functional Priority			
	Freeways and Expressways ***(Mobility Only)***	**Arterials** ***(Mobility Primary, Accessibility Secondary)***	**Collectors** ***(Accessibility Primary, Mobility Secondary)***	**Locals** ***(Accessibility Only)***
Service Performed	Traffic movement, highest speed, no direct land use	Traffic movement, relatively high speed, minimal land access	More frequent land access, relatively low speeds	Direct land access, lowest speeds
Typical Trip Lengths	Interstate and between major regions of metro area	Within major regions of metro area and between communities	Within communities	Within neighborhoods and business centers
Continuity	Totally interconnected and continuous over an entire metro area	Interconnected and continuous within major regions of metro area	Interconnected and continuous within communities	No continuity required
Access Type and Spacing	Interchanges at 1 to 1 ½ mile spacing and at-grade signalized intersections at ½ to 1 mile spacing. No private access	At-grade signalized intersections at ½ mile spacing (¼ on minor arterials). Private access usually restricted	Signalized and stop controlled intersections at 1/8 mile spacing. Some restrictions on private access	Stop sign controlled or uncontrolled intersections. Unrestricted private access.
Facility Spacing Urban Rural	 1 to 3 Miles 5+ Miles	 1 Mile 1 to 2 Miles	 ¼ to ½ Mile 1+ Mile	 As needed As needed
% System Mileage*	5-10%	5-20%	5-10%	65-80%
% Vehicle Miles of Travel Carried*	40-55%	20-35%	5-10%	15-30%

* National Averages

There are no freeways within the Milliken planning area. The Roadway Plan shown on **Figure 19** includes two expressways – US 34 and US 85. These facilities (as well as the other state highways) are controlled by CDOT, and any future development along it which requires access will be governed by the *State Highway Access Code*. The major arterials in the planning area include SH 60, SH 257, Two Rivers Parkway, CR 54, the northern connection, the diagonal connection and the CR 42 extension. The remaining section-line county roads have been designated as minor arterials.

With a few exceptions, the location of collector roads has not been shown on the Roadway Plan. Because these roads primarily serve traffic internal to future development, their alignments will be located as development plans for specific areas are initiated. These roads will be necessary to provide connections to the arterial road system from residential neighborhoods and business developments. Their purpose is not to provide long-distance connections which would be enticing to cut-through traffic. They will generally have curvilinear alignments to minimize longer-distance through traffic which should more properly be using arterials. The intent in locating collector roads will be to line them up on each side of an arterial to minimize the proliferation of T-intersections and the potential number of signalized intersections.

B. Bicycle and Pedestrian Plan

The *Johnstown/Milliken Parks, Trails, Recreation and Open Space Master Plan* was adopted by the communities and the Thompson Rivers Parks and Recreation District in 2003. This master plan identifies general locations of existing and future parks, trails, and open space so that there will be a unified system that is integrated into the development of the communities. The plan enables developers to incorporate new parks and trails into the design of their projects and also provides standards for these amenities. **Figure 23** illustrates the comprehensive trail system that will connect Johnstown and Milliken with other North Front Range communities so that residents (especially school children) can safely travel to schools, parks, commercial areas, and other neighborhoods. In addition to the recreational trails, on-street bicycle lanes and six- to ten-foot wide sidewalks are provided on each side of all arterials in Milliken. These on- and off-street facilities will provide a comprehensive system that can be used by bicyclists and pedestrians to access destinations throughout the community. The Town has identified gaps in the existing sidewalk systems and is budgeting approximately $15,000 per year to fill these gaps and maintain existing sidewalks.

C. Transit Plan

The *Johnstown, Milliken & Windsor Short-Range Transit Plan*, which was completed in 2006, developed a transit plan that would connect Milliken to each of the nearby larger cities of Greeley, Fort Collins, and Loveland. The preferred plan (see **Figure 24**) was developed through evaluation of the existing land use, travel patterns and input from citizens.

Three of the five routes identified in the preferred alternative would provide service to the Milliken area. The first route would travel from Milliken with stops in Johnstown and Windsor to Fort Collins. This route would be made three times per week. The second route would originate in Johnstown, stop in Milliken and travel to Greeley. This route would be made once per week. The third route would travel from Milliken with a stop in Johnstown to Loveland. It would also operate once per week. In addition, demand responsive call-and-ride service would operate four hours per day two days per week.

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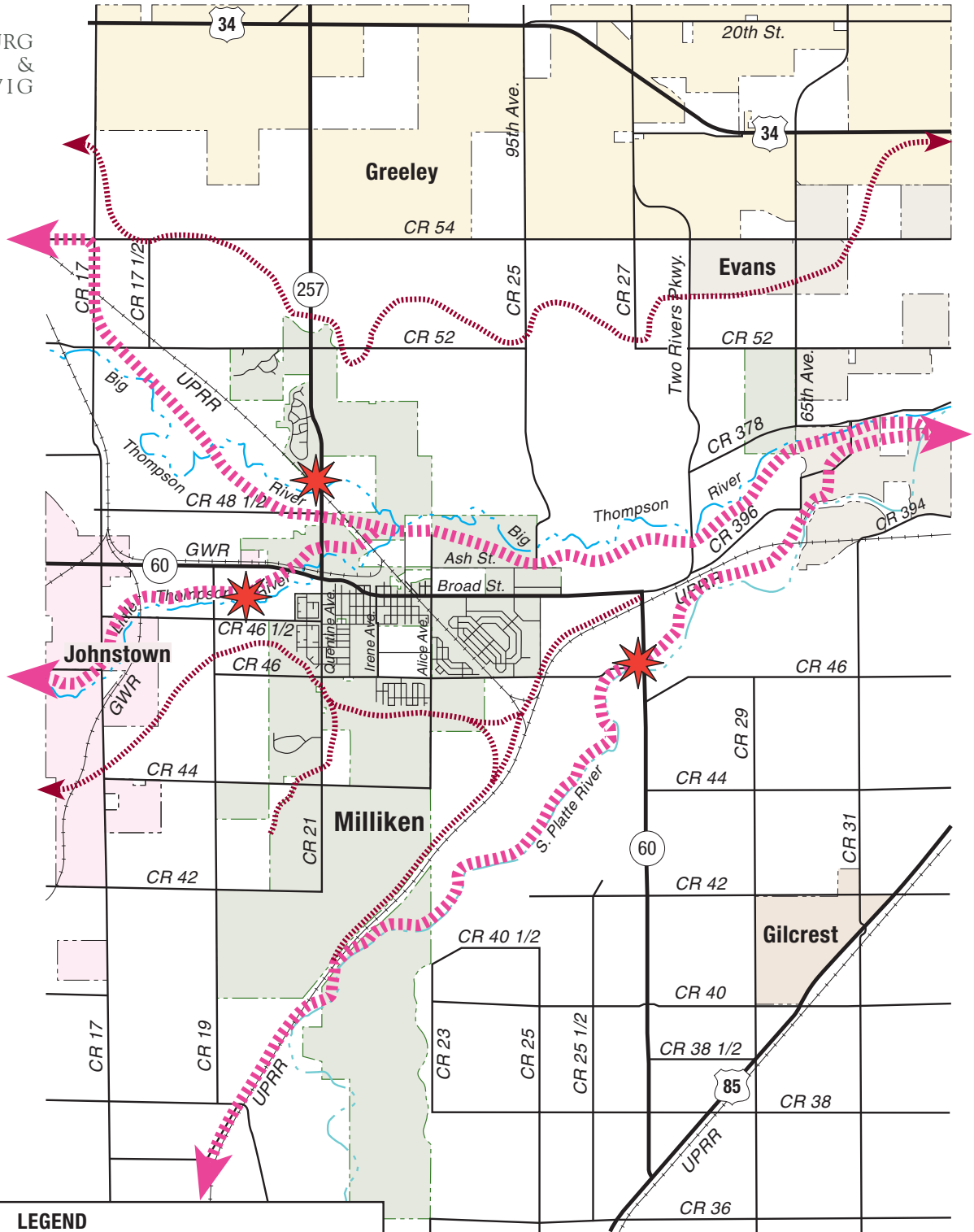


LEGEND

= River Corridor Trails

= Neighborhood Trails

= Proposed Trailheads

North

SOURCE:
Johnstown/Milliken Parks, Trails, Recreation & Open Space Master Plan

Figure 23

Trails Master Plan

FELSBURG HOLT & ULLEVIG

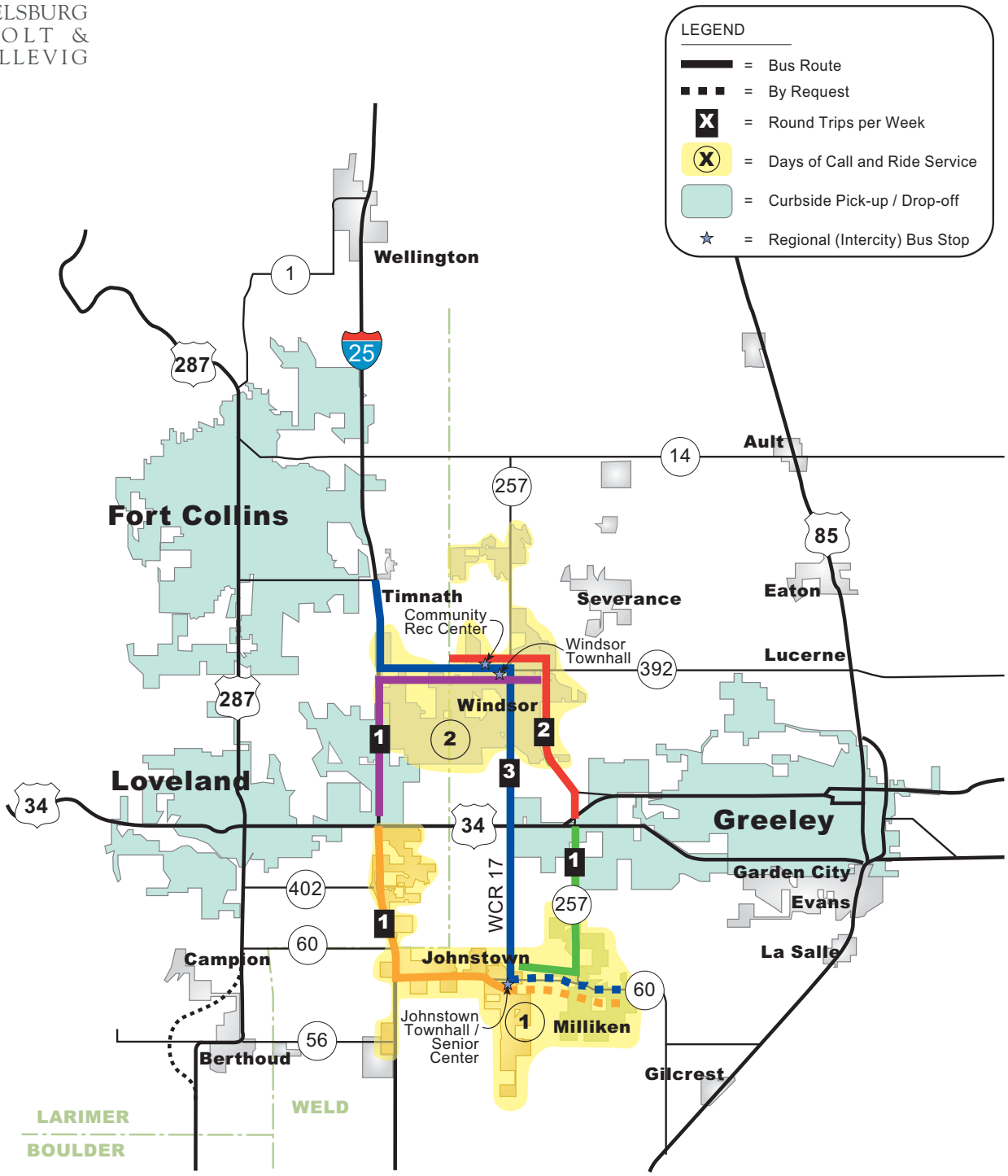


Figure 24

Johnstown, Milliken, and Windsor Short Range Transit Plan
Preferred Alternative

North

Patrons would arrive at the designated pick up location in Milliken or Johnstown via the proposed in-town call-and-ride service or be dropped off. Passengers would have curb side service to their designations within the city limits of Fort Collins, Loveland, and Greeley. While the service would be open to the general public, it would primarily serve the transit dependent and elderly populations. The plan recommends that this service be operated through the existing Weld County Transportation program and be funded through rural transit grants administered by CDOT and by each of the three towns served.

The *North I-25 Environmental Impact Statement* (EIS) is currently evaluating two transportation improvement packages that, if built, could also provide transit service to Milliken residents. The first alternative, Package A, includes feeder bus service along SH 60 and SH 56 that would connect Milliken to a north/south commuter rail service that would parallel US 287. The package also includes commuter bus service along US 85 that Milliken residents could access in Platteville. The second alternative, Package B, includes Bus Rapid Transit service along I-25 that residents could access near the I-25/SH 60 interchange. Package B does not include feeder bus service along SH 60, but Milliken could consider providing this service in the future. Both packages would connect residents to Fort Collins, downtown Denver and/or Denver International Airport (DIA).

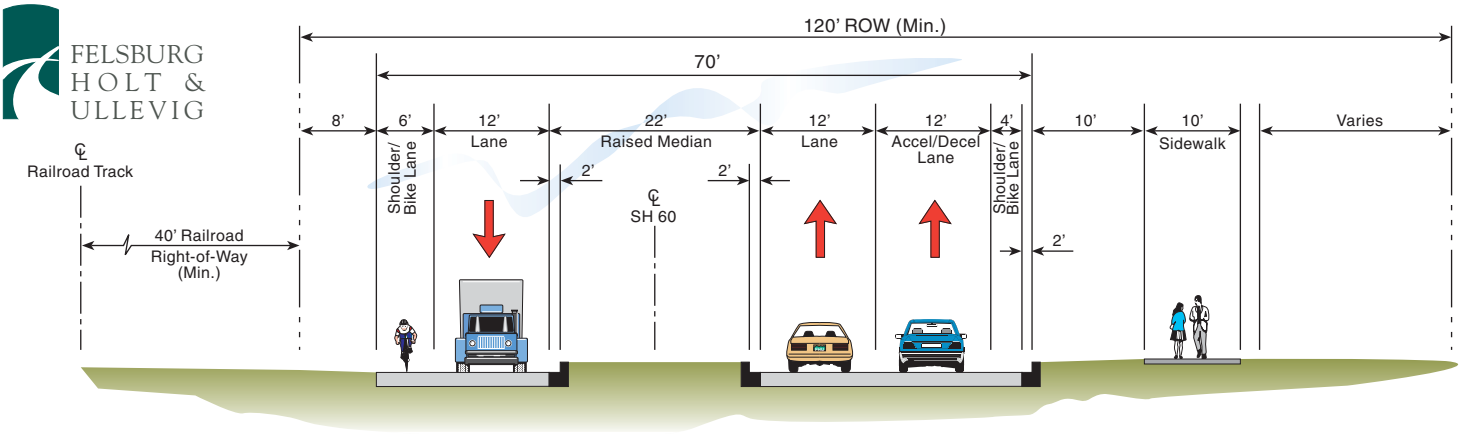
Although the alternatives being considered in the North I-25 EIS represent the current planning for transit in northern Colorado, Milliken should ensure that the potential for future passenger rail along the Union Pacific Railroad line through downtown is not precluded, and the Town should maintain a potential location for a rail station in downtown Milliken.

D. Street Standards

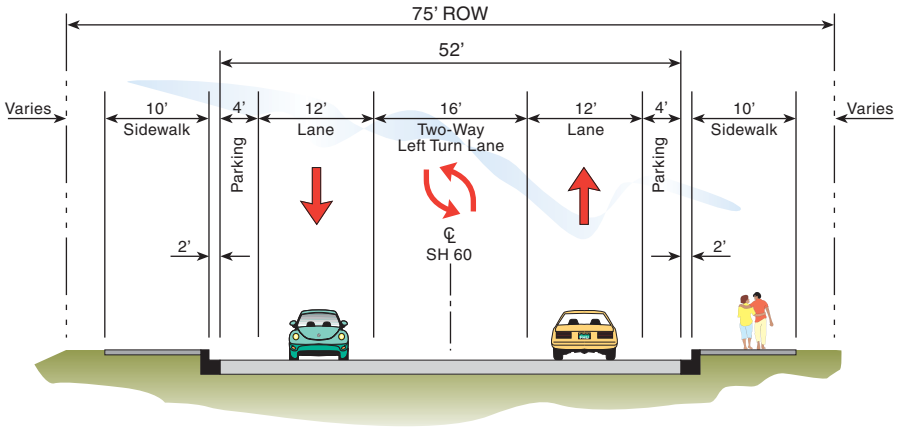
While the Roadway Plan designates the functional classification and laneage of streets in the Milliken planning area, the Street Standards depict such details as the right-of-way requirements, lane widths, median width, bicycle lanes and sidewalk dimensions.

Separate cross-sections for SH 60 have been developed in the *SH 60 Environmental Overview Study* (EOS) and are shown on **Figure 25**. Between SH 257 and the Great Western Railway, the EOS calls for one through lane in each direction with a continuous acceleration/deceleration lane in the eastbound direction. Through downtown Milliken from SH 257 to Alice Avenue, the cross-section for Broad Street includes one travel lane in each direction with a center two-way left turn lane and parallel parking on both sides. The cross-section includes ten-feet sidewalks, which represents an expansion of the existing five-foot sidewalks along Broad Street. A discussion of alternatives for Broad Street is included in Section IV.E. The third cross-section on SH 60 applies to the section between Alice Avenue and Two Rivers Parkway, which includes an ultimate four lane section requiring 150 feet of right-of-way.

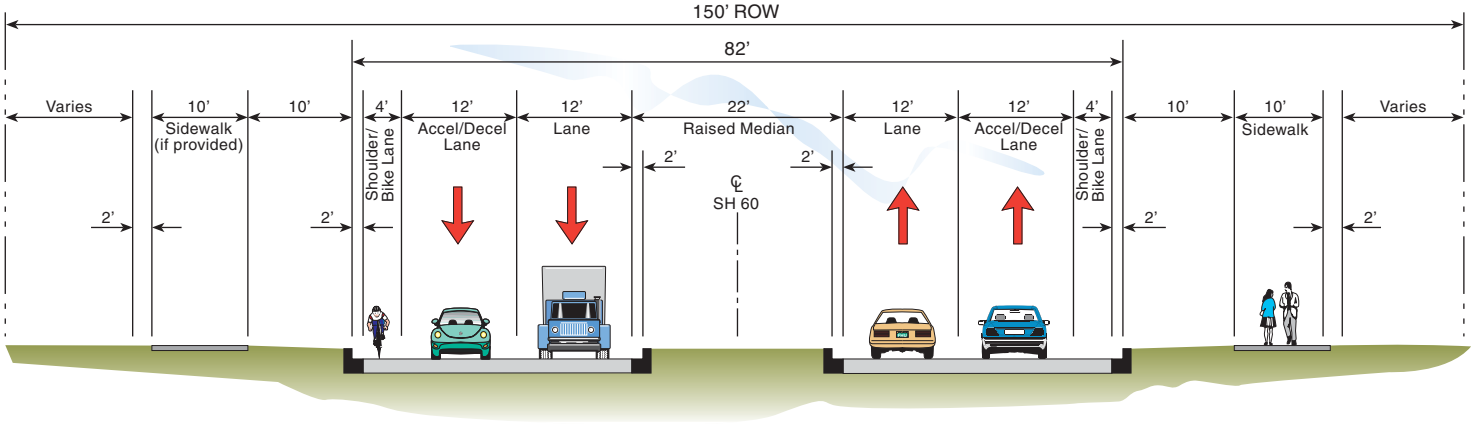
FELSBURG HOLT & ULLEVIG



Two Lane Section with Continuous Eastbound Accel/Decel Lane West of SH 257



Two Lane Section with Two Way Left Turn Lane SH 257 to Alice Avenue



Four Lane Divided Alice Avenue to Two Rivers Parkway

SOURCE:
SH 60 Environmental Overview Study

Not to Scale:
Graphical Representation Only

Figure 25

SH 60 Typical Cross-Sections

Major arterials will ultimately need to be four lanes wide but can initially be constructed as two lanes. The recommended roadway sections for major arterials shown in **Figure 26** illustrate a progression of phased expansion as traffic increases in the future. The ultimate section includes curb and gutter as well as a raised median to provide a separation between opposite flow of traffic, in the interest of safety. Wide sidewalks (eight to ten feet) as well as on-street bike lanes are included in each direction. Initially, there would be one lane in each direction with bike lanes on each side. Sidewalks should be constructed at the ultimate location at the edges of the right-of-way to avoid reconstruction of the sidewalks at the time of widening to four lanes. A right-of-way width of 120 feet is recommended so that there will be adequate room on the outside of the roadway for utilities, sidewalks, and right turn lanes at major intersections.

Minor arterials will for the most part remain as two lane roads, but there is adequate right-of-way (104 feet) so the road could be widened to four lanes in the future if necessary (see **Figure 27**). These roads are currently county roads which will need to be upgraded. Some are already paved and will need overlays on the travel lanes and construction of bike lanes and curb and gutter. Other county roads are currently unpaved and will need to be completely upgraded. These roads will also include six to eight feet sidewalks and the four lane section will include a center two-way left turn lane.

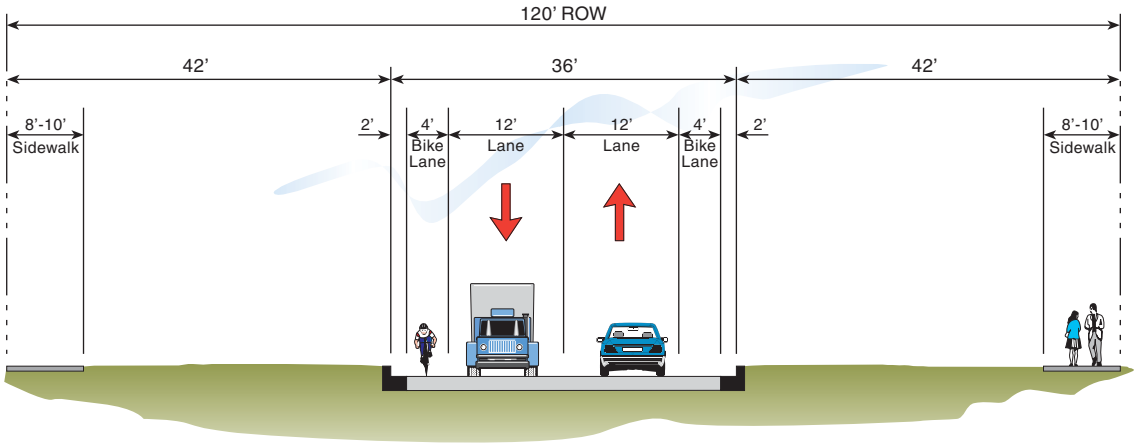
Three cross-sections have been recommended for collector streets, as shown in **Figure 28**. Major collectors would serve higher levels of either business or residential activity and also accommodate higher levels of access to adjacent property. The major collector cross-section includes a center two-way left turn lane, on-street bike lanes and detached sidewalks within an 80-foot right-of-way. Two narrower collector cross-sections are shown on **Figure 28**, each with 72 feet of right-of-way. These collector cross-sections provide the option of either parallel parking with detached sidewalks or angled parking with attached sidewalks.

Three local street cross-sections are shown on **Figure 29**. Each local street section requires a 60 foot right-of-way; the appropriate section should be selected depending upon the adjacent land use, as indicted in **Figure 29**. Street widths are as narrow as possible, while providing for legitimate safety and emergency vehicle considerations. A narrower travel lane width can be used depending upon the daily traffic volume on the local street.

Few communities are immune to the issues relating to neighborhood traffic. Minimizing both traffic speed and traffic volume in residential areas creates safety benefits to local residents. Various methods can be used to slow down or “calm” traffic; however, not all are appropriate for every situation. **Appendix C** includes a tool box of traffic calming options as well as information on how to use them. These traffic calming techniques could be applied to collector or local streets in Milliken. Before implementing traffic calming measures, the Town should develop a policy that addresses such issues as defining the affected area and getting resident participation in the planning process, gaining consensus of affected residents (particularly those adjacent to the device), making sure that the problem will not shift to a nearby street, and homeowner participation in the cost of implementation and maintenance.

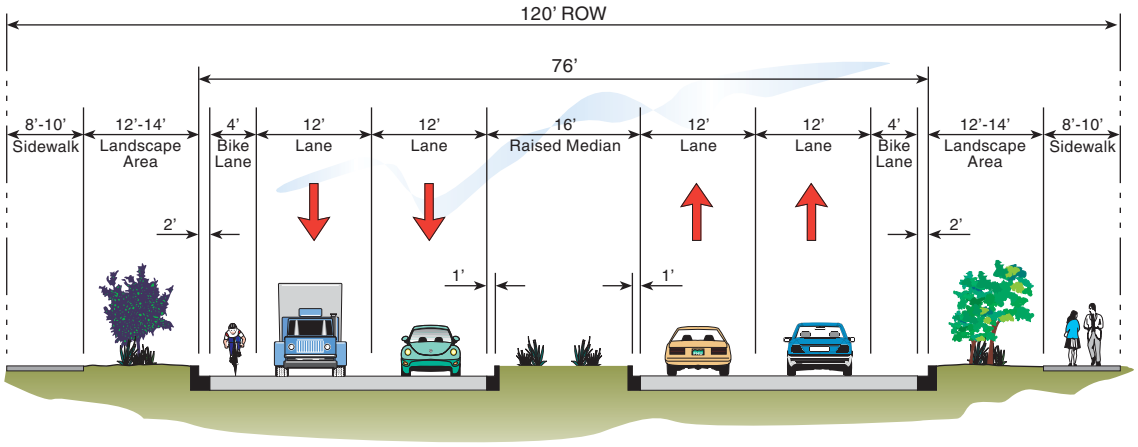
Figure 30 shows a typical cross-section for a private alley, which includes 16 feet of right-of-way and 12 feet of pavement.

FELSBURG HOLT & ULLEVIG

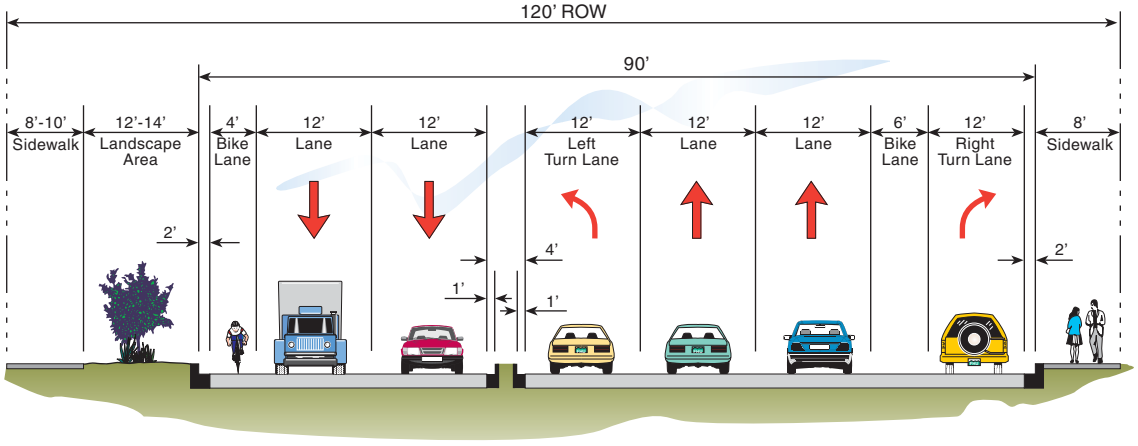


Interim Phase

NOTE: Right and left turn lanes at intersections and accesses as necessary



Ultimate Phase



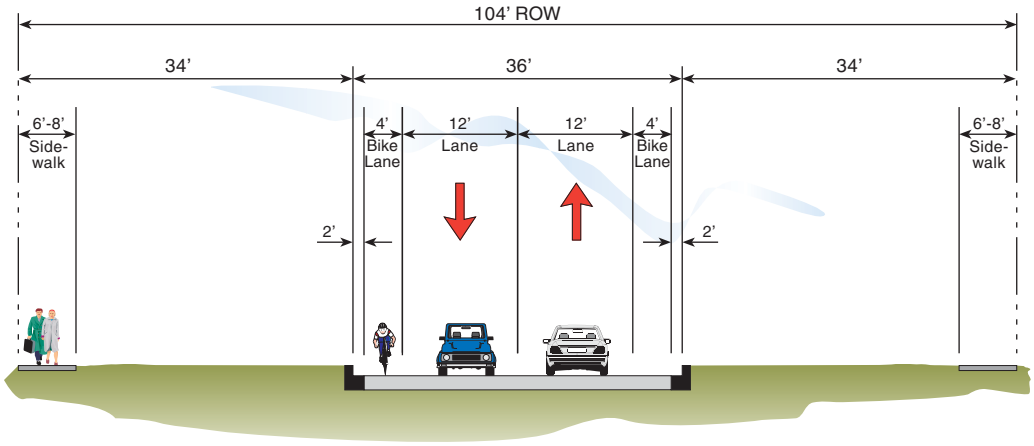
At Major Intersections

Figure 26

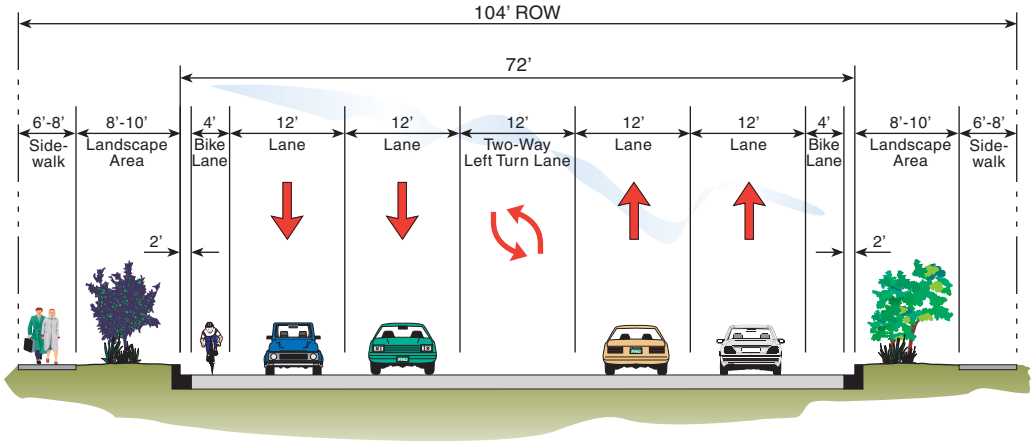
Major Arterial Typical Cross-Sections

Not to Scale:
Graphical Representation Only

FELSBURG HOLT & ULLEVIG



Two Lane Minor Arterial
NOTE: Right and left turn lanes at intersections and accesses as necessary



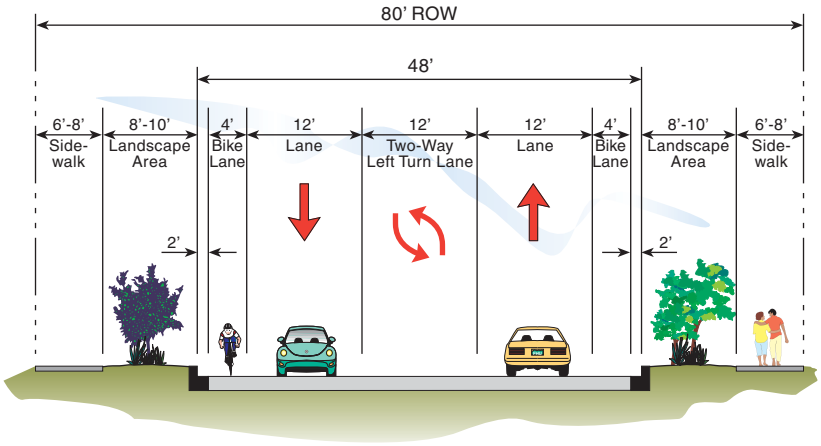
Four Lane Minor Arterial

Figure 27

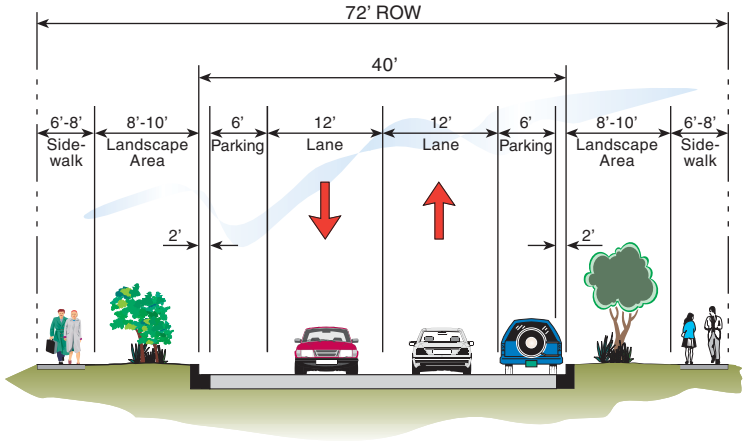
Minor Arterial Typical Cross-Sections

Not to Scale:
Graphical Representation Only

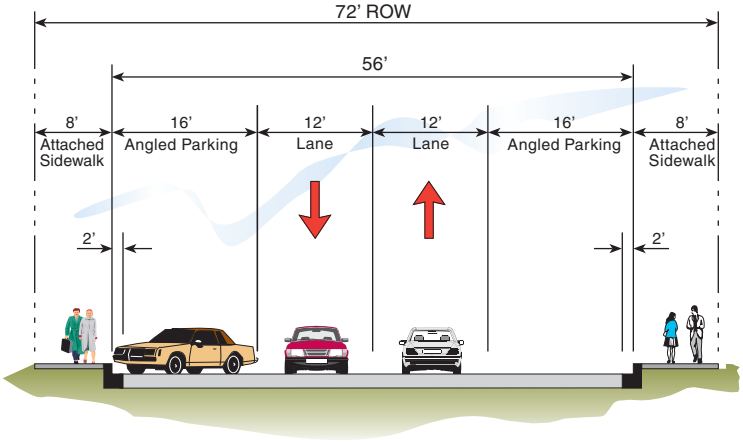
FELSBURG HOLT & ULLEVIG



Major Collector



Collector with Parallel Parking



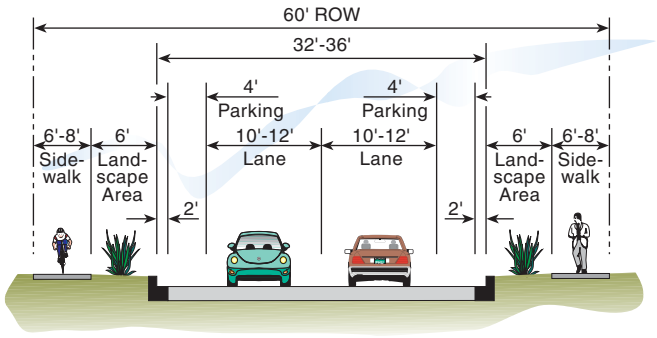
Collector with Angled Parking

Figure 28

Collector Typical Cross-Sections

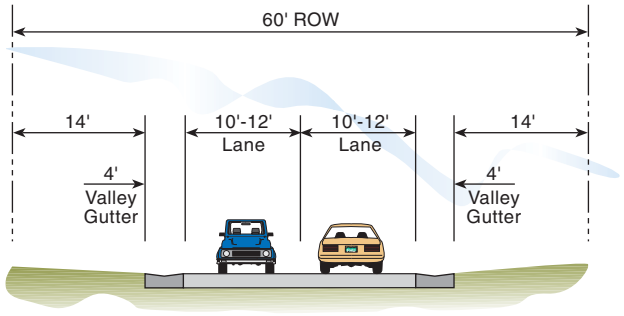
Not to Scale:
Graphical Representation Only

FELSBURG HOLT & ULLEVIG



Residential Local Street

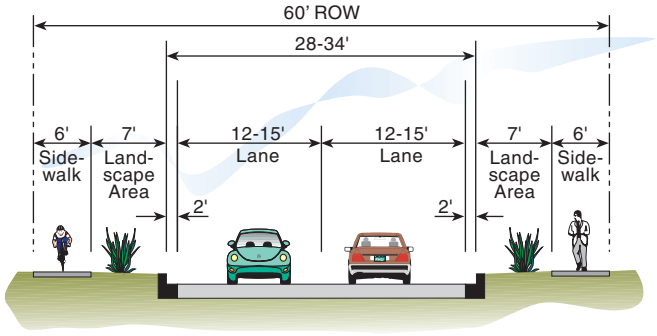
10' travel lanes allowed on streets with <300vpd



Rural Residential Local Street

(to be used only as drainage permits)

10' travel lanes allowed on streets with <200vpd
No on-street parking allowed



Non-Residential Local Street

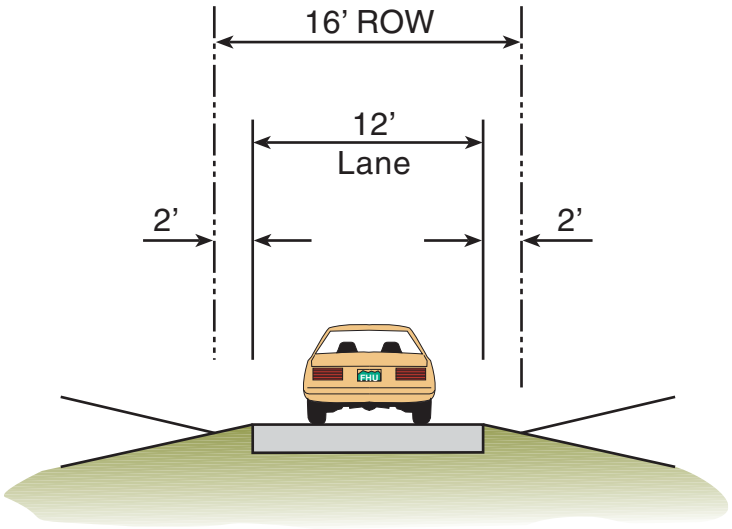
12' travel lanes allowed on streets with <300vpd
No on-street parking allowed

Figure 29

Local Street Typical Cross-Sections

Not to Scale:
Graphical Representation Only

FELSBURG HOLT & ULLEVIG



Private Alley

Figure 30

Private Alley Typical Cross-Section

Not to Scale:
Graphical Representation Only

E. Broad Street (SH 60)

The Town Board, Planning Commission, and citizens of Milliken have expressed concern about the functionality of Broad Street (SH 60) through downtown. There is a desire to maintain the character of downtown by providing safe pedestrian access, adequate on-street parking to support downtown businesses, and attractive amenities while minimizing the truck traffic on Broad Street. The following are several potential changes that should be thoroughly analyzed from the perspective of their economic benefits or impacts in addition to the physical and operational changes they may foster. Ideally, these should be implemented after a comprehensive economic and urban design study has been completed.

Broad Street Cross-Section

The Town of Milliken is currently pursuing alternatives for the future cross-section along Broad Street to achieve the objectives stated above. Two possible alternative cross-sections are included in **Appendix D**. Both alternatives include the removal of the center two-way left turn lane along Broad Street in order to accommodate diagonal parking. One alternative shows head-in angle parking, and the other alternative shows head-out angle parking. While head-in angle parking is more conventional, head-out angle parking is being used in some locations because it provides better visibility when leaving the parking space. A summary of the pros and cons of head-in and head-out angled parking is provided in **Appendix D**. More detailed analysis of the alternative cross-sections for Broad Street is recommended.

Factors to consider include:

- Coordination with CDOT
- Turning movements counts at all intersections so that the volume of left turns from SH 60 can be determined
- Future vehicular and pedestrian traffic
- Consideration of additional on street parking (angle parking provides approximately 16 spaces per idealized block face [without driveways or mid-block planters], parallel parking provides 10 spaces per block face) verses the reduction in traffic capacity with the removal of the center left turn lane
- Economic impact; input from the business community

Truck Route Options

The level of truck traffic utilizing Broad Street (SH 60) through downtown Milliken has been a concern for the community. Approximately 500 trucks per day currently pass through downtown Milliken on Broad Street, representing nearly seven percent of the total daily traffic volume. Several options for discouraging and/or prohibiting through truck travel through downtown have been discussed with the Town Board and the community during the development of this transportation plan. While the ultimate solution to the truck traffic problem may not occur for many years, short term options that make Broad Street less attractive for truck travel may help to discourage trucks from using the downtown Milliken section of SH 60. Each of the long term options involve significant expense and would require a "swap" with CDOT in which the Town would take ownership and maintenance responsibilities of a section of Broad Street in exchange for a new facility. By taking over ownership of Broad Street, the Town would be able to set weight limits on the roadway, thus minimizing truck travel through downtown. Potential short term and long term options are presented below:

Potential Short Term Options to Discourage Truck Traffic on Broad Street:

- Reduce speed limit to 20 or 25 mph
- Narrow the cross-section and convert to diagonal parking (refer to **Appendix D**)
- Pedestrian signing with flashing signs at appropriate locations
- Construct roundabouts at entry points to downtown

Potential Long Term Options to Prohibit Through Truck Travel on Broad Street:

- Designate Two Rivers Parkway as a state highway and truck route
- Designate Northern Connection as a state highway and truck route
- Designate Ash Street/Diagonal Connection as a state highway and truck route

The Town should initiate discussions with CDOT regarding the possible short term and long term solutions for minimizing truck traffic through downtown Milliken.

F. Access Control Policies

In order to preserve the functional integrity, safety, and capacity of roadways in Milliken, it is necessary to establish general access control policy guidelines as part of the Transportation Plan. As previously mentioned, each classification of roadway represents a compromise between the level of mobility (use by through traffic) and access. Access management minimizes interruptions to traffic flow on major roadways while providing appropriate levels of access for adjacent existing and future development. A proliferation of driveways and residential street intersections decreases the speed and capacity of major roadways while increasing hazards to motorists. The purpose of these policy guidelines is to encourage, to the maximum extent possible, the provision of direct access to the roadways with lower functional classifications and to a limited degree, the minor arterial network. For major arterials, the priority function is mobility, which means that the access to these roads (either interchanges or at-grade signalized intersections) should be limited.

Table 5 summarizes the recommended access control policy guidelines for Milliken in the future. Major arterials should be considered to be classified as non-rural arterials (NR-A) according to *State Highway Access Code* (SHAC) guidelines. Minor arterials would be considered to have an NR-B classification, and Collectors would be considered to have an NR-C classification. Milliken should implement these basic access control guidelines through a formal review and approval process which is based on preparation of a traffic impact study for each development by a qualified traffic engineer. This formal process should give Milliken staff the ability to control access along the Town's arterials during the development review and approval process. Developers will be required to coordinate their access with that of nearby properties so that capacity and safety are maximized while still accommodating growth.

Table 5. Access Control Policy Guidelines

Functional Classification	Access Type	Access Spacing	Traffic Controls
Major Arterials (SHAC Category – NRA)	At-Grade Intersections	½ Mile Minimum	Signals
Minor Arterials (SHAC Category – NRB)	At-Grade Intersections	¼ Mile Minimum	Signal – typical; Stop signs in special circumstances
Collectors (SHAC Category – NRC)	At-Grade Intersections	1/8 Mile Typical	Stop signs – typical; Signals in special circumstances
Locals	At-Grade Intersections	Variable	Stop signs

The purpose of access control is to limit the number of driveways and conflict points, separate conflict points, and separate turning traffic from through traffic. No more than two access points on adjacent streets should be allowed per property, and access should be to collector streets wherever possible. Techniques to limit the number of conflict points include decreasing the number of left turns, using right-in/right-out, restricting movements at median openings, implementation of spacing standards, corner clearance requirements, signal spacing guidelines, and requirements related to the separation of access points.

Turning and through traffic can be separated through the use of left and right turn lanes and two-way left turn lanes. Turning lanes should include adequate provision for acceleration or deceleration to minimize friction to through traffic from turning vehicles which are traveling at slower speeds. The SHAC provides guidance about requirements for turning lanes including the necessary volume warrants and associated geometrics. Milliken should follow these guidelines until such time as Milliken has the need to develop more specific local guidelines.

Figure 31 provides guidance concerning the appropriate separation of driveways along arterial, collector and local roadways.

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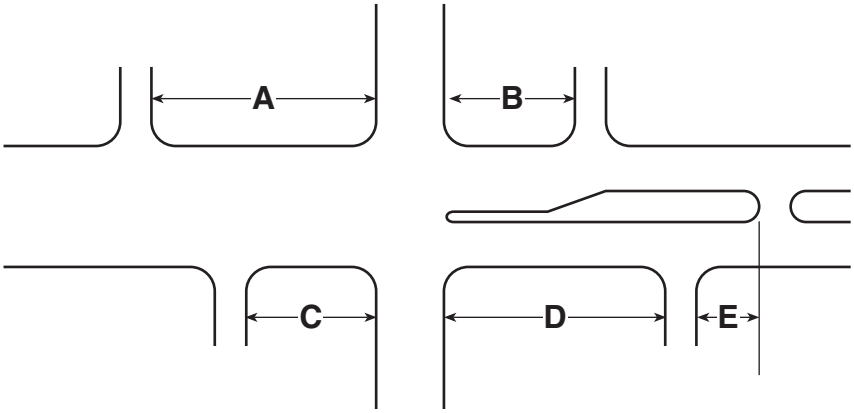
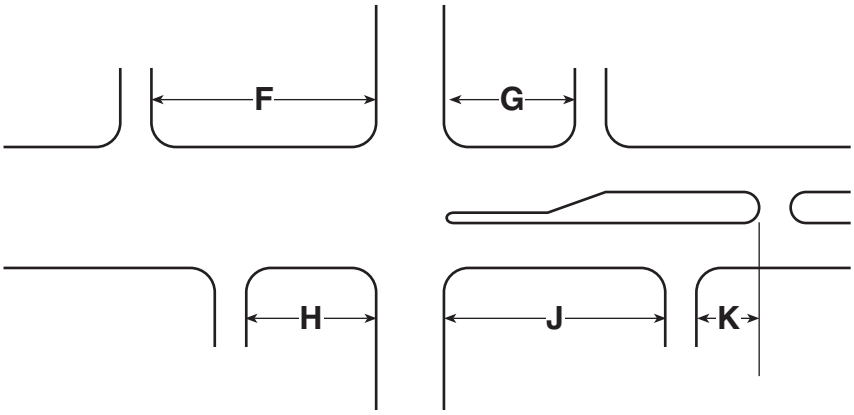


Signalized Intersection Control

Item	Functional Classification of Road		
	Arterial	Collector	Local
A	230	175	50
B	115	85	50
C	230	175	50
D	230	175	50
E	75	0	0



Stop-sign Intersection Control

Item	Functional Classification of Road		
	Arterial	Collector	Local
F	115	75	50
G	115	85	50
H	85	85	50
J	115	75	50
K	75	0	0

Source: Stover and Koepke, Transporation and Land Development, Institute of Transporation Engineers, 1988.

Figure 31

Minimum Corner Clearances For Driveways