TRANSPORTATION PLAN 2014 UPDATE

February 2014

Superior, Colorado

The Plan provides a long-range evaluation of future mobility needs and identifies solutions that guide the Town's future transportation investments.

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Section 1

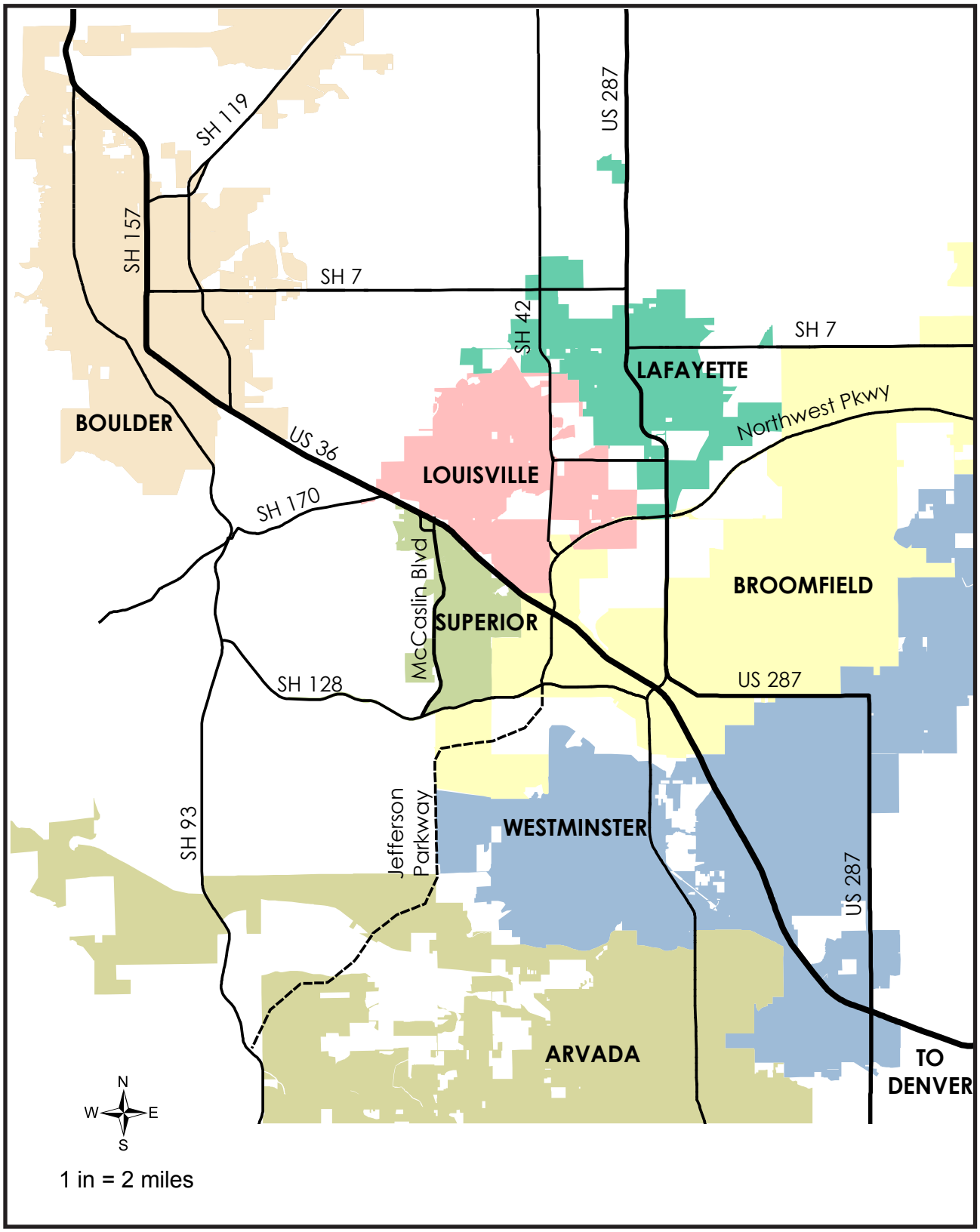
INTRODUCTION

Overview of Superior

The Town of Superior is a small town located between the cities of Boulder and Broomfield, Colorado, on the northern edge of the Denver metropolitan area. The major roadways through Superior include US Highway 36 (US 36), State Highway 170 (Marshall Road), McCaslin Boulevard, Rock Creek Parkway, Coalton Road, S. 88th Street and Coal Creek Drive, as shown in Figure 1.

Superior and the surrounding area experienced rapid growth in the 1990s and early 2000s. Growth is currently minimal in the region following the economic slowdown of 2009. There are a small number of housing developments being planned and built throughout the region, including Superior Town Center. Three major nearby employment centers (Centennial in Louisville, Interlocken Business Park, and the Flatirons Crossing Mall in Broomfield) and numerous minor employment centers have been developed in the surrounding area, and there are plans to expand existing employment centers. The Town approved the Superior Town Center development in 2013 which, along with the recently approved Coal Creek Crossing development and new interest in the Calmante development, may result in an increase in growth in Superior during the next few years.

Figure 1: Overview of Superior



Background

The Town first adopted its *Comprehensive Plan* in 1975. A new Plan was developed and updated in 1989, with updates occurring in 1996, 2001, 2006, and 2012. For the 2012 update, the Town Board decided to update the Comprehensive Plan to update plans for vacant parcels and to assess the need for transportation improvements. This update is the result of numerous public workshops, open houses, surveys, and other forums for public input.

Transportation planning plays a fundamental role in conjunction with the comprehensive planning process. The Town of Superior's *Transportation Plan, 2013 Update*, provides a long-range evaluation of future mobility needs and identifies solutions that guide the Town's future transportation investments through its Goals and Policies. The plan focuses not just on the network of roads and streets, but also bicycle and pedestrian enhancements, freeway and transit improvements, and opportunities for improvements through additional roundabouts, traffic signals and median improvements. This *Transportation Plan* is aligned with the goals and outcomes for the Town of Superior described in the *Comprehensive Plan*.

Comprehensive Plan Community Meetings

Section 2

TRANSPORTATION GOALS AND POLICIES

The following Transportation Goals and Policies are contained in the *Town of Superior Comprehensive Plan*:

Goal:

DEVELOP A MULTI-MODAL TRANSPORTATION SYSTEM TO EFFICIENTLY MEET THE LOCAL AND REGIONAL TRANSPORTATION NEEDS OF RESIDENTS AND BUSINESSES IN A SAFE, CONVENIENT, AND EFFICIENT MANNER WHILE MINIMIZING NEGATIVE ENVIRONMENTAL AND COMMUNITY IMPACTS.

Policies:

Policy 8.1.a: Alternative Modes of Transportation

Encourage alternative modes of transportation through the establishment of bicycle routes, pedestrian corridors, neighborhood electric vehicle routes and transit stops linking major residential areas with commercial, recreational and open space facilities and with established or proposed regional bicycle systems and with transit hubs. Encourage the adoption and facilitation of additional alternative modes of transportation, such as neighborhood electric vehicles, and continue to monitor similar advancements and regulations in neighboring communities.

Policy 8.1.b: RTD Services and Facilities

Encourage RTD to provide transit services and facilities that adequately serve the travel needs of commuters and transit-dependent groups. Work with RTD, Louisville and Broomfield to re-institute Call-n-Ride service and expand local bus service within Superior.

Policy 8.1.c: Superior RTD park-n-Ride Facility

Encourage public transit by promoting the Superior RTD park-n-Ride facility as the primary regional transit hub within the Town and by promoting local bus routes. Coordinate with RTD on a future direct route from Superior to Denver International Airport.

Policy 8.1.d: US 36 Bus Rapid Transit HOV Lanes

Support the development of managed lanes on US 36 with a bus/rapid transit station to serve the Town of Superior. Participate in US 36 corridor meetings and support pedestrian/ bicycle/local bus access to the BRT stations.

Eldorado K-8 School

Superior park-n-Ride

Policy 8.1.e: Transit-Oriented Design Principles

Encourage potential development near the bus/rapid transit stations to use and implement transit-oriented design principles when master planning future development parcels.

Use Transit-Oriented Design Principles

Policy 8.1.f: Integrated Vehicle and Pedestrian/Bicycle Corridors

Require development to integrate new vehicular and pedestrian/bicycle corridors with adjacent development and the Town of Superior trails network and street network.

Policy 8.1.g: Visual Image

Require that roads and other transportation facilities be designed to contribute to a positive and attractive visual image and the desired community character by incorporating signage, landscape elements and street furnishings as part of proposed development.

Maintain an Attractive Visual Image

Policy 8.1.h: Northwest Corridor

The Town should actively participate in the planning and design process of any transportation improvements for the Northwest Corridor. Regardless of the final approved location of any improvements, the Town of Superior will be impacted by additional traffic seeking access and egress from this regional arterial.

Policy 8.1.i: Neighborhood Connections

Connect neighborhoods using multiple pedestrian/bicycle and local, internal vehicular access/egress routes and minimize indirect and unnecessary travel. Traffic calming may be implemented on connections where cut-through traffic may negatively impact residential neighborhoods.

Policy 8.1.j: Traditional Neighborhood Design for Original Superior and Superior Town Center

Encourage pedestrian-oriented development in and around Original Superior and the Town Center through the use of traditional neighborhood design street standards that promote slow travel speeds and allow shared use of the public right-of-way.

Policy 8.1.k: Development Along McCaslin Boulevard

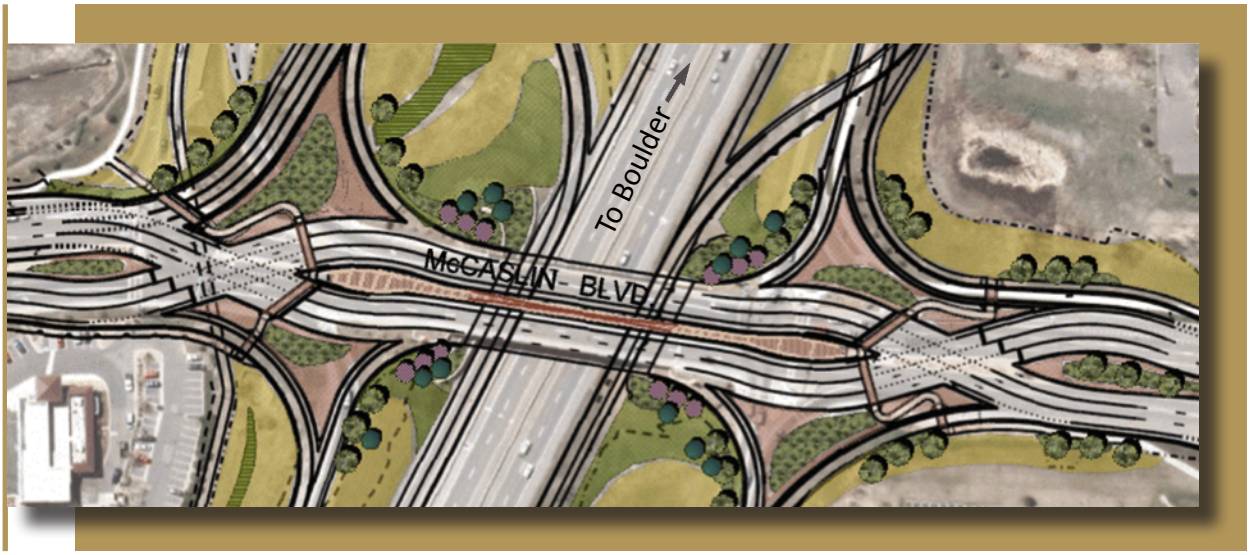
Require development adjacent to McCaslin Boulevard to include site amenities that link internal pedestrian/bicycle circulation to pedestrian/bicycle crossings located in, above, or below the public-right-of way, and to be designed to insulate the pedestrian and/or cyclist from motorized vehicles.

Policy 8.1.l: Superior Park-n-Ride Shared Parking

Ensure that RTD explores shared parking opportunities with adjacent landowners in the reconfiguration and construction of the Superior park-n-Ride.

Policy 8.1.m: McCaslin Boulevard/US 36 Interchange

Improve traffic flow of the McCaslin Boulevard/US 36 interchange by constructing a Diverging Diamond Interchange (DDI) and reconfiguring the west side ramps to provide more direct access to RTD's Park-n-Ride. The DDI best achieves maximization of the existing infrastructure, including the bridge structure over US 36, accommodates or enhances bicycle and pedestrian mobility, maintains transit connectivity, and accommodates the foreseeable traffic demand.



Policy 8.1.n: McCaslin Boulevard

Ensure effective traffic flows along McCaslin Boulevard between SH 128 and Rock Creek Parkway without exceeding the road's existing functional classification as a two-lane arterial. Ensure that any road improvements made along the McCaslin Corridor include appropriate design features to inhibit high speeds and excessive noise levels. Evaluate natural noise mitigation measures near established residential areas.

Policy 8.1.o: Connections to Superior Town Center

Ensure neighborhood connections between the Town Center and S. 88th St and S. Coal Creek Drive that respond to projected traffic counts for the proposed Land Uses as depicted on the 2012 Comprehensive Plan's Community Framework and Land Use Plan.

Policy 8.1.p: Vehicular, Bicycle and Pedestrian Access Throughout Superior

Ensure safe, effective and direct access between all neighborhoods of Superior for vehicular, bicycle and pedestrian access.

Policy 8.1.q: Future Street Connections

Require development submittals to plan for future street connections by including infrastructure improvements that could potentially support future road connections.

Policy 8.1.r: Accessibility

Ensure all transportation improvements are designed to meet the requirements of the Americans with Disabilities Act (ADA).

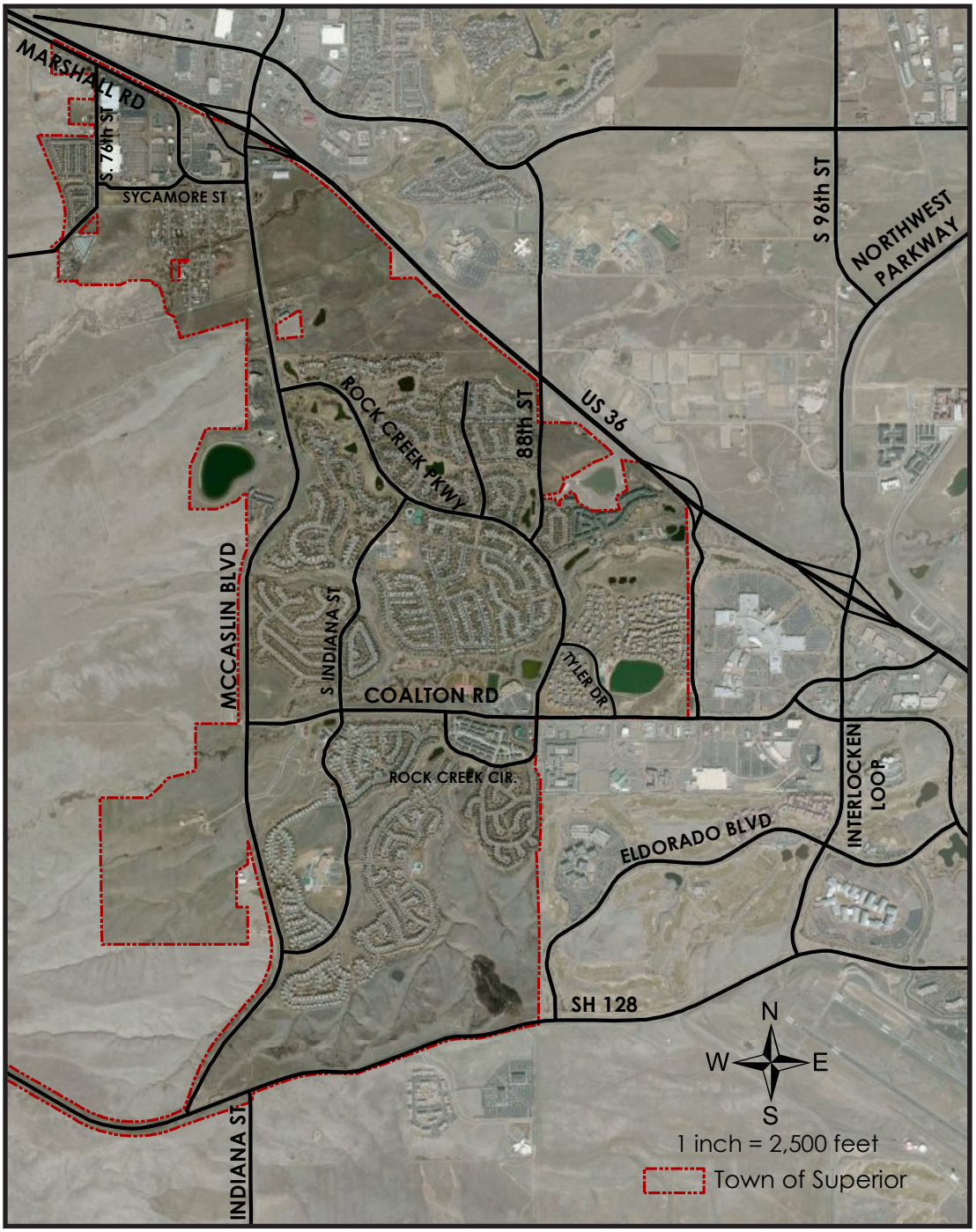
Section 3

EXISTING TRANSPORTATION NETWORK

Street Network:

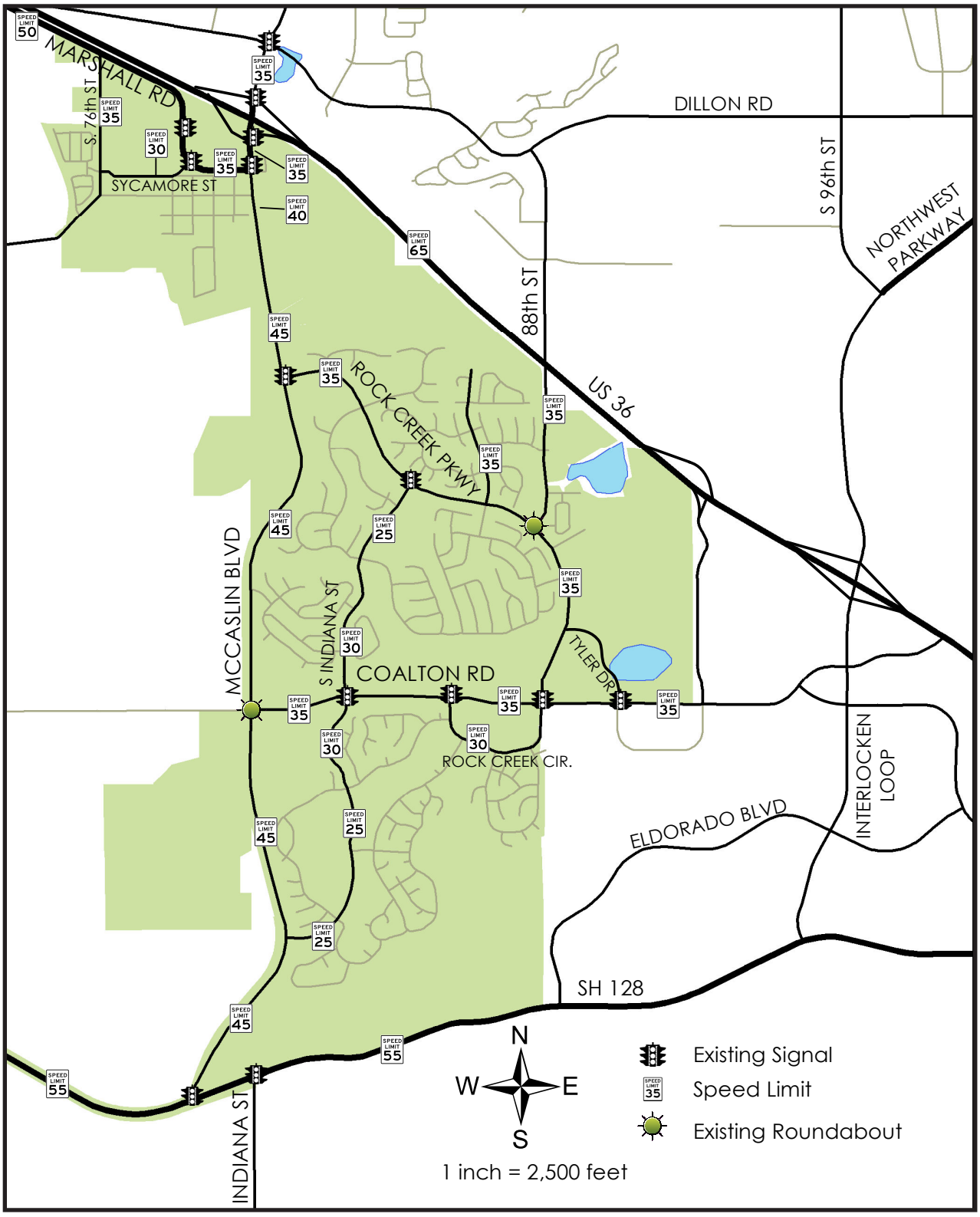
The major existing corridors within the Superior Planning Area, shown in Figure 2, are McCaslin Boulevard, Coalton Road, Rock Creek Parkway, S. 88th Street, State Highway 170 (Marshall Road), State Highway 128, and US 36.

Figure 2: Street Network



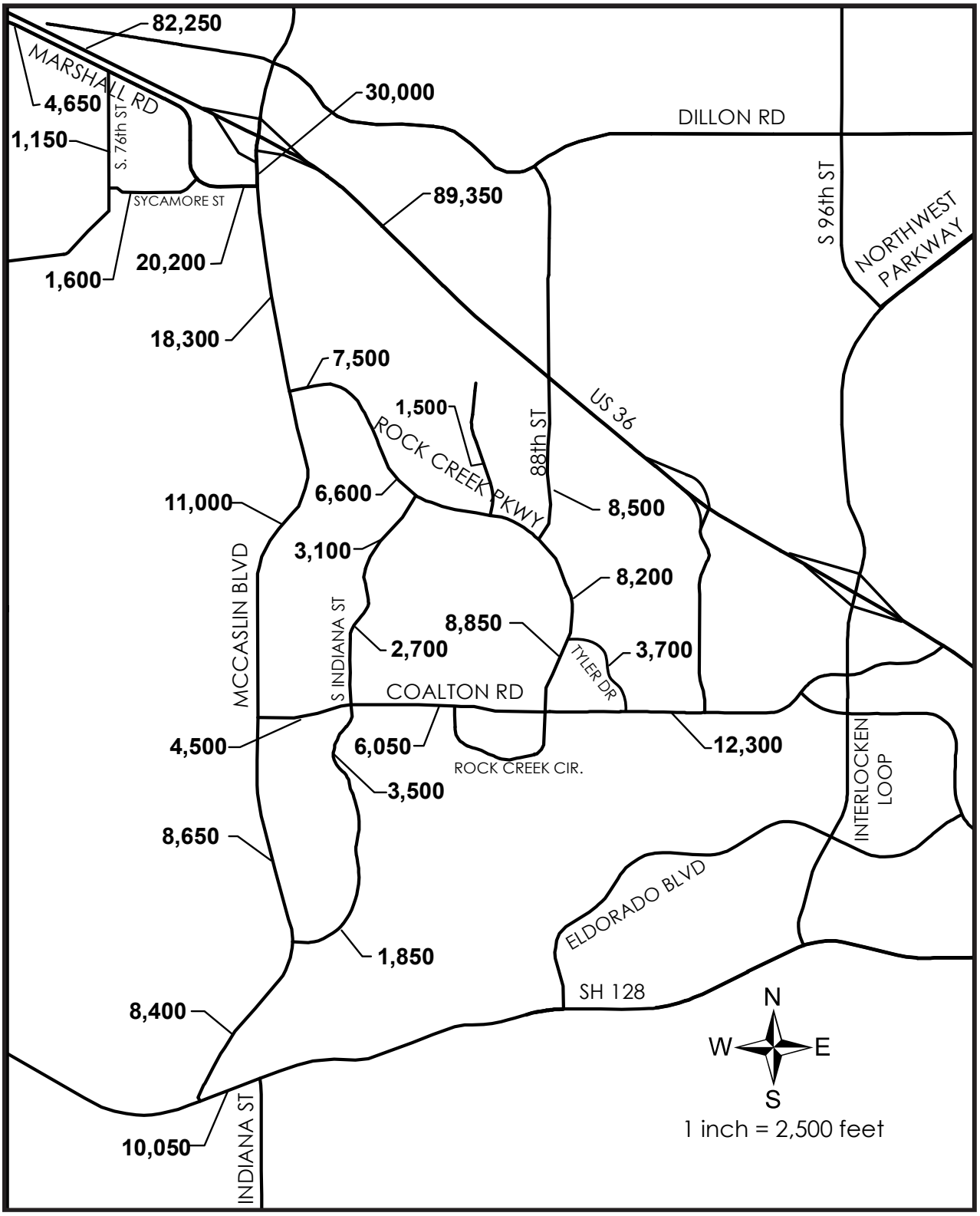
Current traffic control and speed limits are shown in Figure 3.

Figure 3: Current Traffic Control



Traffic volumes for the year 2010 are shown in Figure 4 below. These volumes reveal existing patterns of travel and use that can be examined for problems and opportunities in the Town of Superior's transportation network.

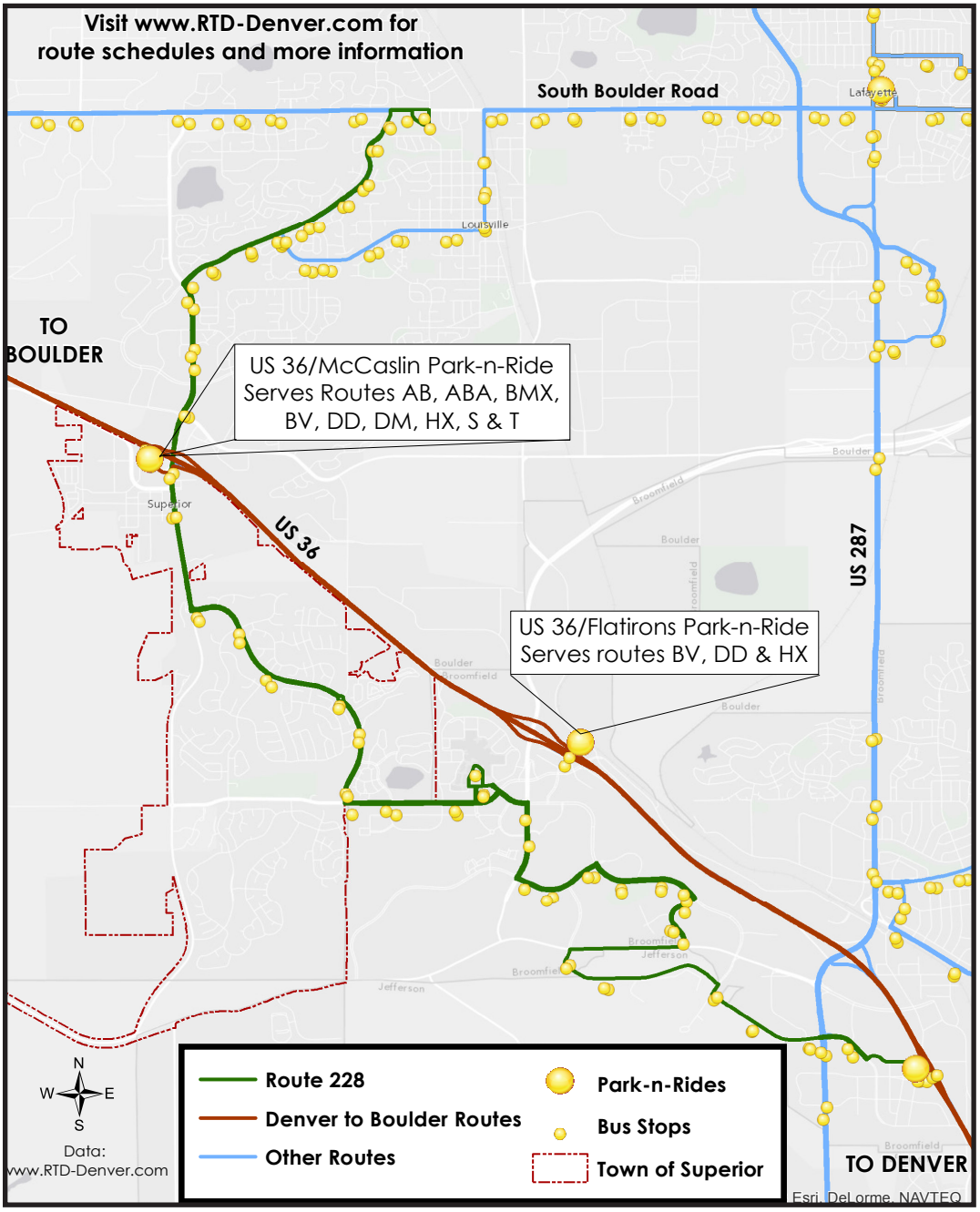
Figure 4: Year 2010 Average Weekday Traffic Volumes



Other Modes of Transportation

The Regional Transportation District (RTD) is responsible for supplying mass transportation for the Denver-Metro Area. RTD bus routes link the municipalities to each other and concentrate on service to downtown Denver and Boulder, both major employment centers. An RTD Park-n-Ride facility is located at the intersection of McCaslin Boulevard and US 36. RTD ridership in Superior is less than the regional average (3.8% of total person trips in Superior vs. 4.6% in Denver Metro (US Census 2010 ACS 5 yr)). These statistics can partly be explained by the Superior's relative lack of nearby employment opportunities that are conveniently served by mass transportation. RTD Routes serving Superior are shown in Figure 5.

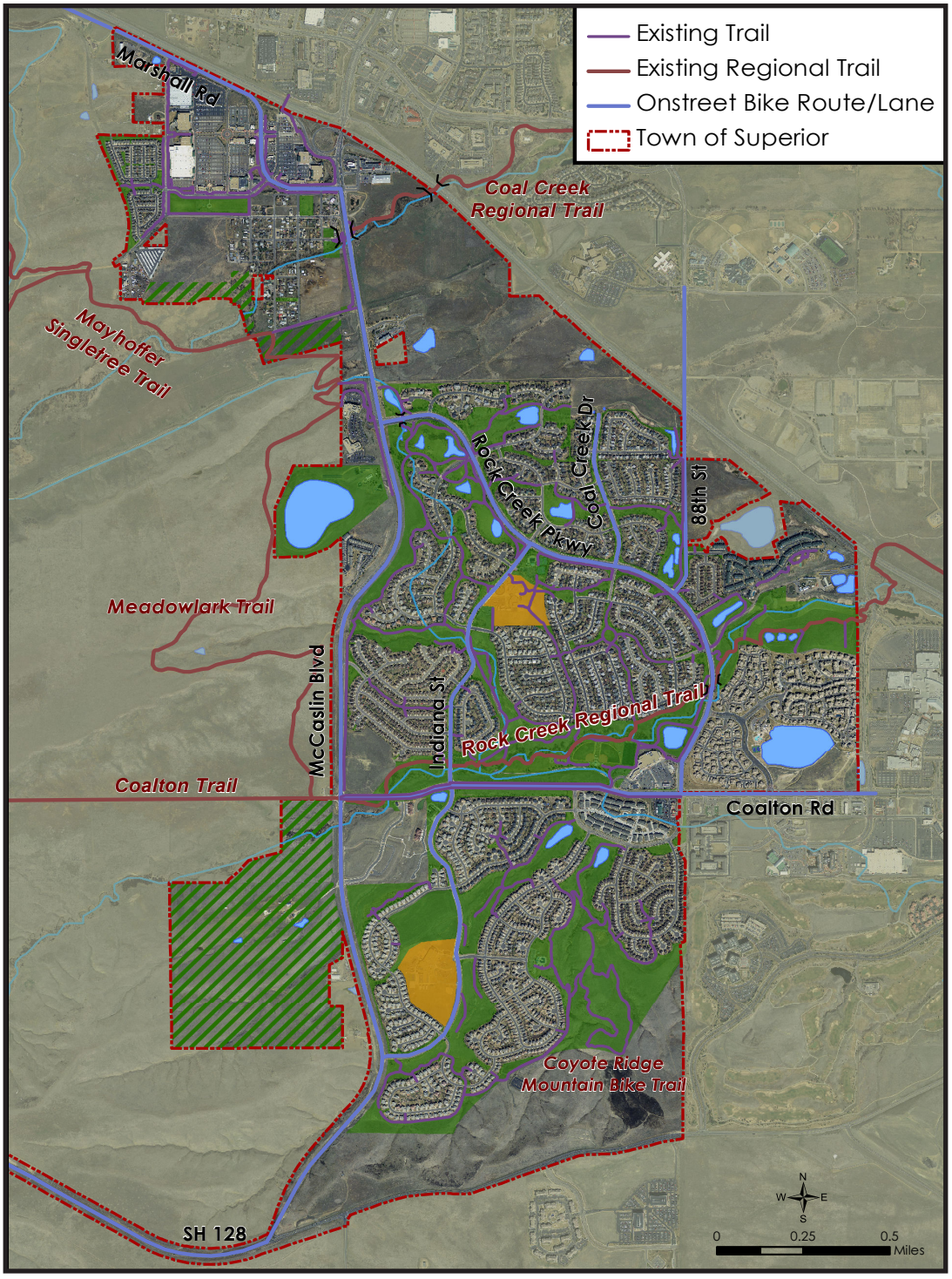
Figure 5: Public Transit



Pedestrian and Bicycle Transportation Network

Pedestrian and bicycle transportation can be an alternative to driving an automobile. *The Parks, Recreation, Open Space and Trails Plan*, referred to in the Comprehensive Plan, illustrates existing and planned bicycle and pedestrian facilities. Figure 6 below shows the existing bikeway and trail network within the Town.

Figure 6: Existing Bikeway and Trails



Section 4

TRAFFIC PROJECTIONS

Regional Population and Employment Growth

Population and employment are two critical determinants of travel demand. While the *Comprehensive Plan* will guide development patterns within Superior's planning area, growth occurring in nearby communities will also have impact on Superior's transportation system.

The US 36 Corridor is experiencing growth in both population and employment. The Final Environmental Impact Statement (FEIS) was published in 2010 for the US 36 Corridor, recommending expansion and improvements to accommodate projected growth and development in western regions of the corridor.

Table 1: Regional Projections

Area	Year	Population	Employment
City of Boulder	2010	97,385	80,062
	2035	115,352	105,957
	% Change	18.5%	32.3%
Town of Superior	2010	12,483	2,903
	2035	15-283-16,783 est.	4,319
	% Change	22.4%-34.5% est.	48.8%
City of Louisville	2010	18,376	12,798
	2035	20,985	18,739
	% Change	14.2%	46.4%
US 36 Corridor Boulder to Denver CBD	2005	505,900	332,500
	2035	649,100	508,500
	% Change	28.3%	52.9%

Boulder, Superior and Louisville population data: 2010 US Census; Boulder, Superior and Louisville employment data: DRCOG Community Profiles 2011; US 36 data: US 36 FEIS 2010

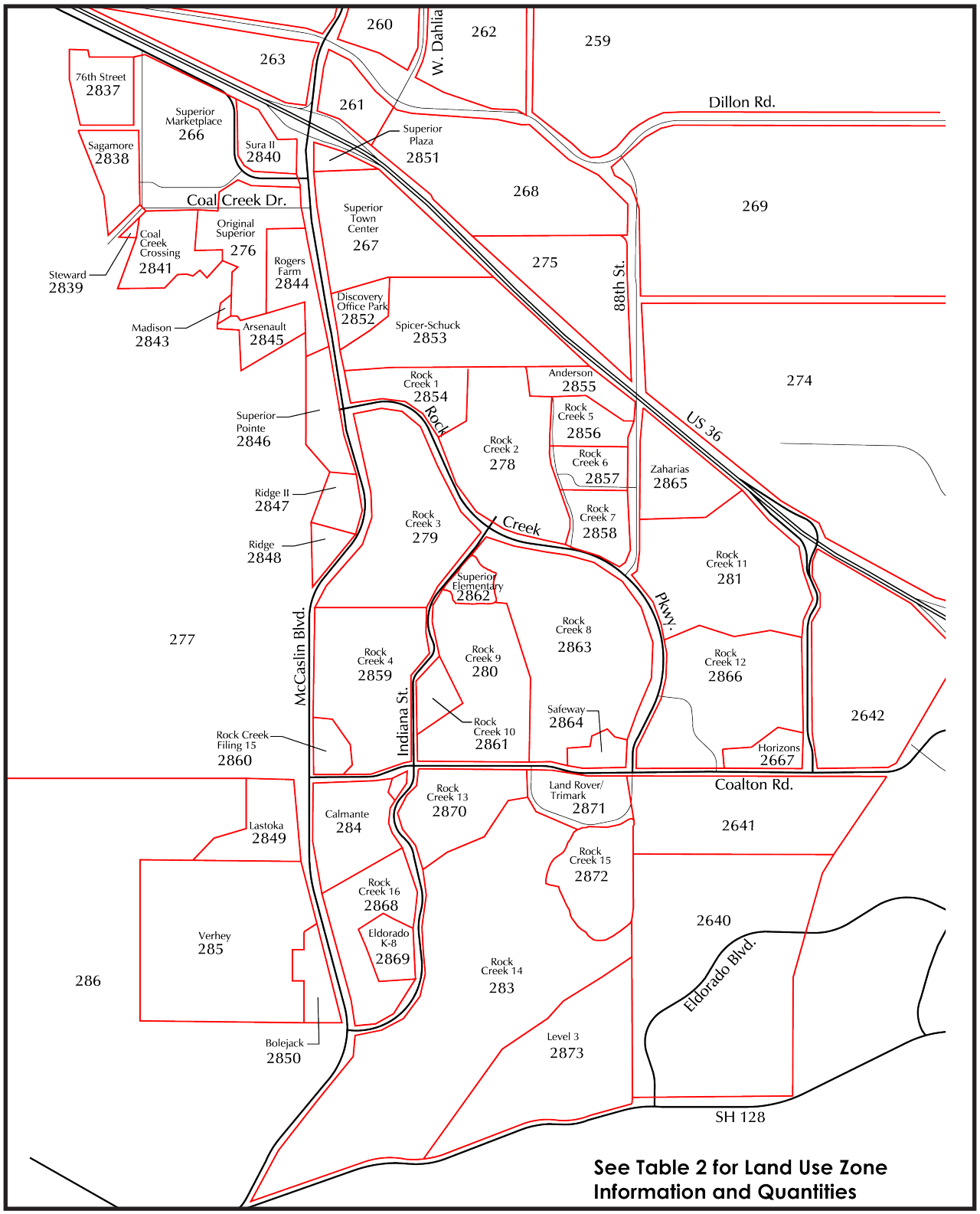
Land Use Forecasts

As part of the update of Superior's *Transportation Plan*, the transportation model for Superior was updated and expanded. A travel demand model is a planning tool for assessing improvements to a transportation system, given projected future demand. It provides output in the form of estimated traffic volumes on the roadway system based on future land use input into the regional model. The travel demand model for the *Transportation Plan* update for the US 36/McCaslin Boulevard Interchange study was used to forecast growth for the 2035 time frame.

The Interchange study used the most current version of the Denver Regional Council of Governments' (DRCOG's) regional travel demand forecasting model, Compass 4.0 (Cycle 2, 2009), for developing traffic forecasts, with refinements made in the vicinity of the study corridor based on input from the City of Louisville, Town of Superior, Boulder County, and the US 36 EIS. These refinements included subdividing the traffic analysis zones (TAZs) to better reflect planned development locations and their future access to the regional road system, adjusting the land use to reflect the current local area plans of the communities, and updating the roadway system to accurately reflect the anticipated 2035 road network.

The land uses in the area, shown in Table 2, were aggregated into a total of 46 TAZs, as shown in Figure 7 and categorized by Land Use in Figure 8. A total of 6,469 dwelling units, 2.14M square feet of office space, and 1.1M square feet of retail space are expected for buildout of the zones shown. Table 2 also shows the number of new trips generated per TAZ if development occurs as projected in the *Comprehensive Plan*. After running the model and making adjustments to reflect existing travel patterns, 2035 average daily traffic forecasts were made, as illustrated in Figure 9.

Figure7: Land Use Zones

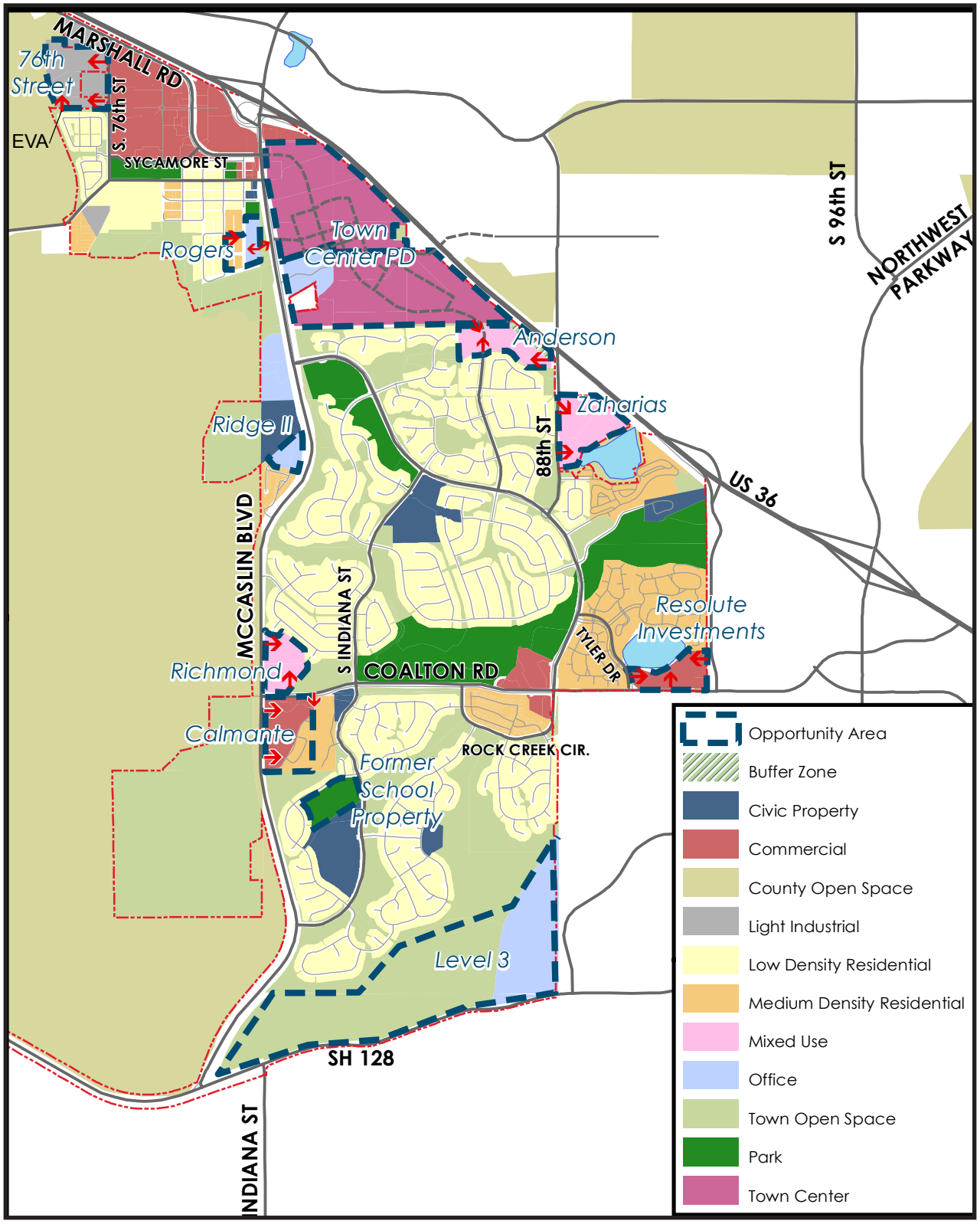


Source: DRCOG Traffic Analysis Zones (TAZ)

Zone	Parcel Name	Land Use Type	Existing		New		Total		Daily		
			Quantity	Unit	Quantity	Unit	Quantity	Unit	ITE Rate	New ITE Trips	Total ITE Trips
266	Superior Marketplace	Retail	649	KSF	20	KSF	669	KSF	42.94	859	28,727
267	Superior Town Center	Rink	40	KSF	52.058	KSF	92.058	KSF	23.60	1,229	2,173
		Multi-Family	0	DU	750	DU	750	DU	5.81	4,358	4,358
		Hotel	0	Rooms	300	Rooms	300	Rooms	8.17	2,451	2,451
		Restaurant	0	KSF	30	KSF	30	DU	127.2	3,815	3,815
		Retail	0	KSF	30	KSF	30	KSF	44.32	1,330	1,330
		Govt Office	0	KSF	60	KSF	60	KSF	11.03	662	662
		Med. Office	0	KSF	65	KSF	65	KSF	36.13	2,348	2,348
		Office	0	KSF	40	KSF	40	KSF	11.03	441	441
276	Original Superior	Single Family	49	DU	35	KSF	84	DU	9.52	333	800
		Multi-Family	36	DU	0	DU	36	DU	5.81	0	209
		Govt. Office	6	KSF	0	KSF	6	KSF	68.93	0	414
		Retail	25	KSF	0	KSF	25	KSF	42.94	0	1,074
278	Rock Creek 2	Single Family	177	DU	0	DU	177	DU	9.52	0	1,685
279	Rock Creek 3	Single Family	167	DU	0	DU	167	DU	9.52	0	1,590
281	Rock Creek 11	Single Family	51	DU	0	DU	51	DU	9.52	0	486
		Multi-Family	324	DU	0	DU	324	DU	5.81	0	1,882
283	Rock Creek 14	Single Family	537	DU	0	DU	537	DU	9.52	0	5,112
2837	76th Street	Single Family	5	DU	0	DU	5	DU	9.52	0	48
		Lgt Industrial	????	KSF	50	KSF	50	KSF	6.97	349	349
2838	Sagamore	Single Family	171	DU	0	DU	171	DU	9.52	0	1,628
2839	Steward	Single Family	0	DU	8	DU	8	DU	9.52	76	76
2840	SURA II	Retail	177	KSF	20	KSF	197	KSF	42.94	859	8,459
2841	Coal Creek Crossing	Single Family	0	DU	53	DU	53	DU	9.52	505	505
2843	Madson	Open Space	0		0		0		0	0	0
2844	Rogers	Multi-Family	0	DU	33	DU	0	DU	5.81	0	0
		Office	0	DU	47	KSF	33	DU	11.03	192	192
2845	Arsenault	Open Space	0		0		0			0	0
285	Verhey	Single Family	2	DU	2	DU	4	DU	9.52	0	0
2852	Discovery Office Park	Office	40	KSF	95	KSF	135	KSF	11.03	1,048	1,489
		Multi-Family	0	DU	24	DU	24	DU	5.81	139	139
2853	Superior Town Center South	Office		KSF	100	KSF	100	KSF	11.03	1,103	1,103
		Single Family		DU	471	DU	471	DU	5.81	2,737	2,737
		Multi-Family		DU	179	DU	179	DU	9.52	1,704	1,704
		Restaurant		KSF	2.5	KSF	2.5	KSF	127.2	318	318
		Pre-K School			200	Student	200	KSF	1.94	388	388
2854	Rock Creek 1	Single Family	28	DU	0	DU	28	DU	9.52	0	267

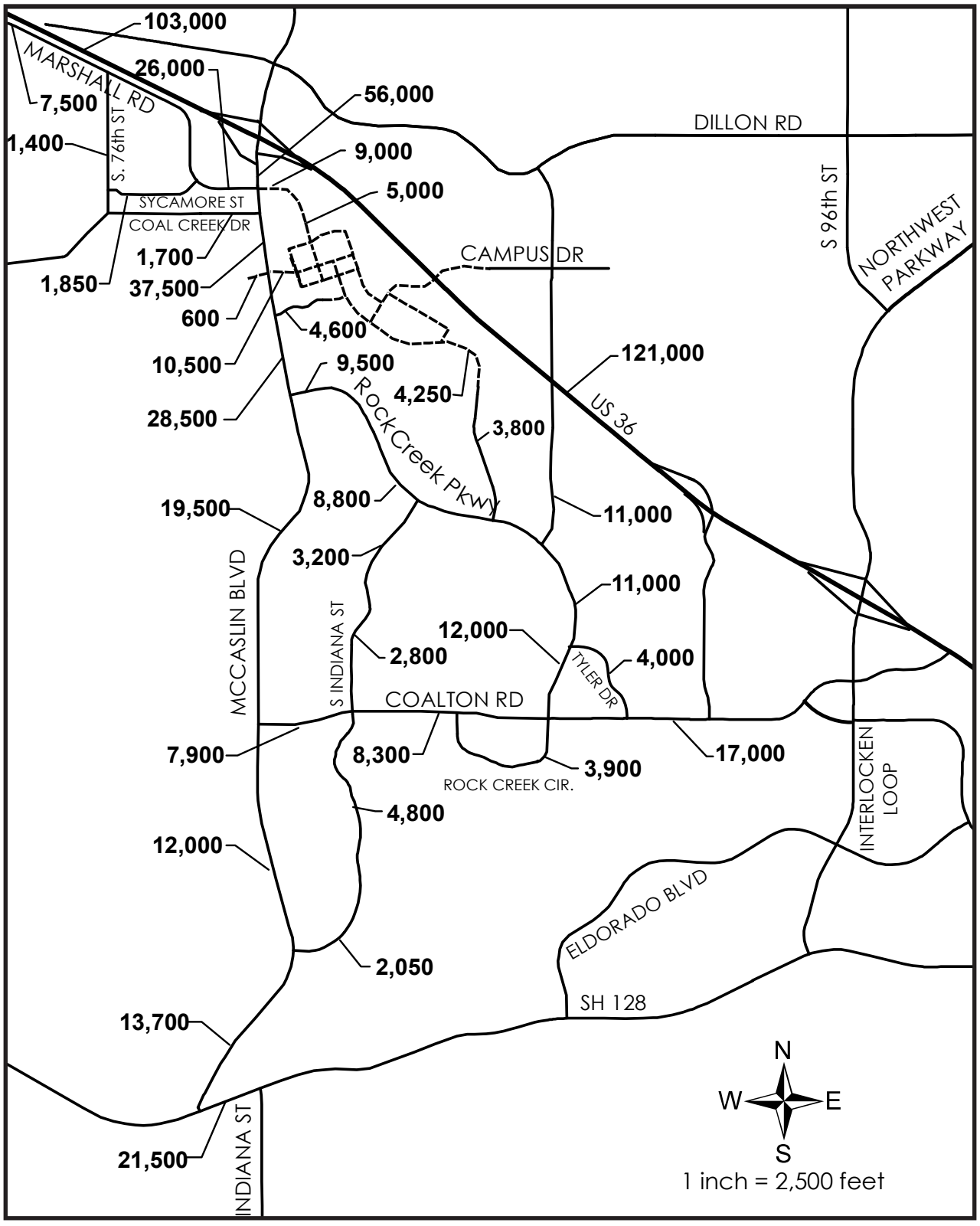
Zone	Parcel Name	Land Use Type	Existing		New		Total		Daily		
			Quantity	Unit	Quantity	Unit	Quantity	Unit	ITE Rate	New ITE Trips	Total ITE Trips
2855	Anderson	Office		KSF	91	KSF	91	KSF	11.03	1,004	1,004
2856	Rock Creek 5	Single Family	104	DU	0	DU	104	DU	9.52	0	990
2857	Rock Creek 6	Single Family	100	DU	0	DU	100	DU	9.52	0	952
2858	Rock Creek 7	Single Family	50	DU	0	DU	50	DU	9.52	0	476
2862	Superior Elementary	Elementary School	550	Students	0	Students	550	Students	1.29	0	710
2863	Rock Creek 8	Single Family	380	DU		DU	380	DU	9.52	0	3,618
2865	Zarahias	Multi-Family	0	DU	124	DU	124	DU	5.81	720	720
		Office	0	KSF	113	KSF	113	KSF	11.03	1,246	1,246
2870	Rock Creek 13	Single Family	169	DU	0	DU	169	DU	9.52	0	1,609
280	Rock Creek 9	Single Family	121	DU	0	DU	121	DU	9.52	0	1,152
284	Calmante	Multi-Family	10	DU	65	DU	75	DU	5.81	378	436
		Office	0	KSF	71	KSF	71	KSF	11.03	783	783
2846	Superior Pointe	Office	150	KSF	0	KSF	150	KSF	11.03	0	1,655
2847	Ridge II	Office	0	KSF	54	KSF	54	KSF	11.03	596	596
2848	Ridge	Multi-Family	82	DU	0	DU	82	DU	5.81	0	476
2849	Lastoka	Open Space								0	
2850	Bolejack	Single Family	1	DU	0	DU	1	DU	9.52	0	10
2851	Superior Plaza	Retail	36	KSF	0	KSF	36	KSF	42.94	0	1,546
2859	Rock Creek 4	Single Family	281	DU	0	DU	281	DU	9.52	0	2,675
2860	Rock Creek Filing 15	Retail	0	KSF	10	KSF	10	KSF	42.94	429	429
		Office	0	KSF	69	KSF	69	KSF	11.03	761	761
2861	Rock Creek 10	Single Family	59	DU	0	DU	59	DU	9.52	0	562
2866	Horizons	Multi-Family	1206	DU	0	DU	1206	DU	5.81	0	7,007
2867	Resolute	Retail	0	KSF	10	KSF	10	KSF	42.94	429	429
		Office	0	KSF	150	KSF	150	KSF	11.03	1,655	1,655
		Hotel	0	Rooms	125	Rooms	125	Rooms	8.17	1,021	1,021
2868	Rock Creek 16	Single Family	128	DU	0	DU	128	DU	9.52	0	1,219
2869	Eldorado K-8	Elementary School	900	Students	0	Students	900	Students	1.29	0	1,161
2871	Trimark-Land Rover	Multi-Family	226	DU	0	DU	226	DU	5.81	0	1,313
		Retail	25	KSF	0	KSF	25	KSF	42.94	0	1,074
2872	Rock Creek 15	Single Family	261	DU	0	DU	261	DU	9.52	0	2,485
2873	Level 3	Office	0	KSF	1000	KSF	1000	KSF	11.03	11,030	11,030
2864	Safeway	Retail	65	KSF	0	KSF	65	KSF	42.94	0	2,791
										Total New Trips: 47,833	
											Total Trips: 133,106

Figure 8: Land Use by Category



2035 Traffic Forecasts

Figure 9: Year 2035 Estimated Average Daily Traffic



Section 5

LONG RANGE TRANSPORTATION PLAN

This *Transportation Plan* provides for all aspects of transportation in the Town, from the automobile to mass transit as well as pedestrian and bicycle facilities. The plan is intended to set a framework the Town can follow in establishing an overall transportation network. In some instances, the plan is based upon expansion and/or improvements to existing streets. In other cases, the plan describes proposed streets which are to become the Town's major thoroughfares.

Description of Proposed Roadway Classifications

A clear hierarchy of roadways has been established for the Town and is described as follows:

Freeway - Completely controlled access highways designed to provide interstate or intercity traffic flow, with grade separations at intersections.

Major Arterial - A street designed to provide rapid traffic movement through the Town, with access control, channelized intersections, and restricted parking. The primary function is to connect major land use areas to one another and to collect traffic from intersecting minor arterials and major collectors.

Minor Arterial - A street with signals at important intersections and Stop signs on the side streets. It collects and distributes traffic to and from collector streets. Minor arterials can act as boundaries between neighborhood areas or different land uses.

Major Collector - A street which permits relatively unimpeded traffic movement, where traffic demands are relatively high (up to four lanes), but where a higher classification street is not warranted. No back-out drives are permitted.

Minor Collector - A street which collects and distributes traffic between local streets and arterials. Back-out drives are discouraged.

Local - A street which provides direct access to adjacent properties, including residential uses. Local streets typically are designed to discourage through traffic within neighborhoods.

Table 3 summarizes the typical design standards for each of the roadway types. The Town adopted Roadway Design Criteria and Standards in October, 2003 for street development. Table 4 illustrates typical daily traffic capacity thresholds and trip lengths associated with each functional classification.

Table 3: Roadway Design Standards

	Local	Minor Collector	Major Collector	Minor Arterial	Major Arterial
Design Speed (mph)	25	30	35	35-45	45-50
Driving Lanes	2	2	4	4	4-6
ROW (ft)	60'	60'	80'-100'	110'	120'
Roadway Widths (at intersection)*, **	34'	36'	74'	80'	104'
Roadway Widths (through section)**	34'	36'	62'	80'	104'
Sidewalk, Curb, Gutter	Vertical curb w/ detached walk	Vertical curb w/ detached walk	Vertical curb w/ 5' detached walk	Vertical curb w/ 5' detached walk	Vertical curb w/ 5' detached walk
Parking	On-Street	On-Street Discouraged	No On-Street	No On-Street	No On-Street

Source: Town of Superior Roadway Design Criteria, 2003
*Applies to intersections with major collectors and minor and major arterials. Length of widened section will be established by detailed traffic investigations. Width may vary dependent upon geometry of final design.
**Measured flowline to flowline.

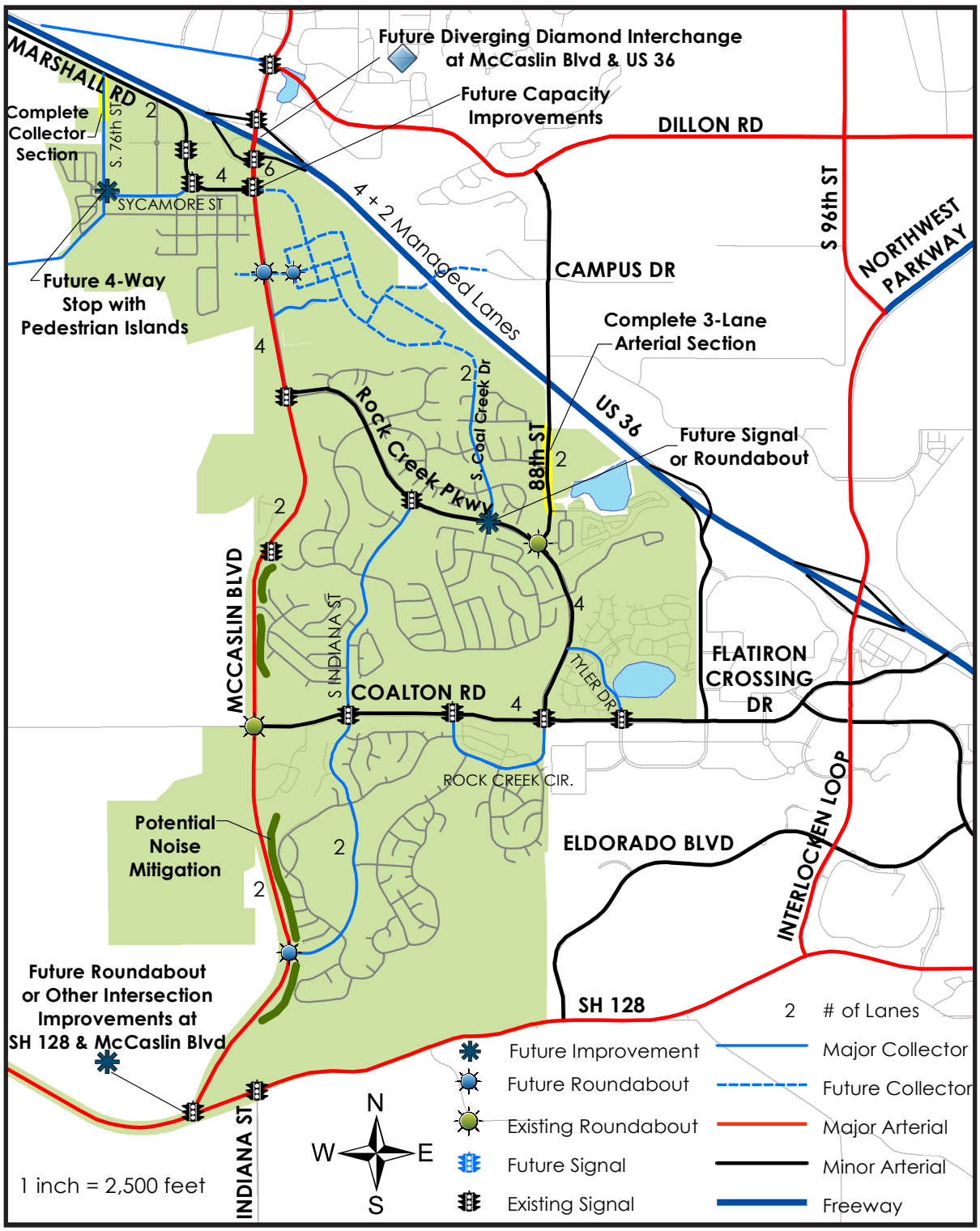
Table 4: Functional Classification Characteristics

Functional Classification	Trip Length (Miles)	Daily Traffic Volume Capacity Limits		
		2 Lanes	4 Lanes	6 Lanes
Freeway	>6	--	80,000	120,000
Major Arterial	4-6	16,000	32,000	48,000
Minor Arterial	2-4	12,000	24,000	36,000
Major Collector	0.5 - 2	8,000	18,000	--
Minor Collector	0.25 - 0.5	8,000	--	--
Local	<0.25	2,000	--	--

Roadway Plan

Based on the projected 2035 traffic forecasts and the above functional classification criteria, the Roadway Plan was developed to show proposed number of lanes, signal locations and roundabouts, shown in Figure 10.

Figure 10: Roadway Plan

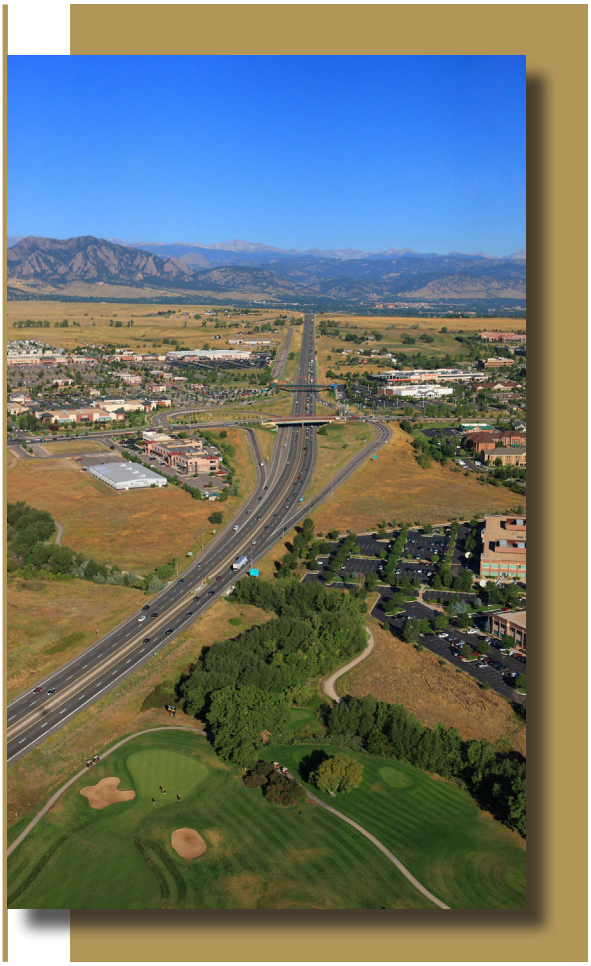


The following are streets and roadways in Superior, identified by classification:

Freeways:

US 36

US 36 is a four-lane, limited access freeway that defines the north edge of the Superior growth area. US 36 provides high speed access between Superior, Boulder and other Denver metro area destinations. Original Superior, as well as the undeveloped lands along US 36, have excellent exposure from the highway.



Traffic volumes on US 36 near Superior are expected to increase from about 90,000 vehicles per day in 2010 to about 120,000 vpd day in 2035. To accommodate this growth, the CDOT is expanding the highway's capacity as well as improving facilities for mass transit and bicycles. These improvements include:

- ***15 miles of new managed lanes (one in each direction) in the median of US 36;***
- ***Improved RTD access at Superior park-n-Ride through reconstruction of west side ramps;***
- ***Paved bikeway from Table Mesa to Sheridan.***

Improvements are planned at the McCaslin Boulevard interchange with US 36, Superior's only direct access to the freeway. The Town of Superior and the City of Louisville are working with CDOT to include the construction of a Diverging Diamond Interchange (DDI) as part of Phase 2 of the improvements along US 36. A DDI shifts traffic to the opposite side of the road across the interchange so vehicles have unimpeded movements onto the freeway ramps. Left turn conflicts with through movements, as are typically a challenge with standard diamond interchanges, are eliminated with the DDI. **The DDI best achieves the project goals to maximize the use of the existing infrastructure including the bridge structure over US36, to accommodate or enhance bicycle and pedestrian mobility, to improve transit connectivity, and to accommodate foreseeable demand**. These improvements are necessary to extend the operational life of the interchange.

The Northwest Parkway

A four-lane, limited access toll highway connecting US 36 to I-25 at E-470.

Major Arterials:

McCaslin Boulevard

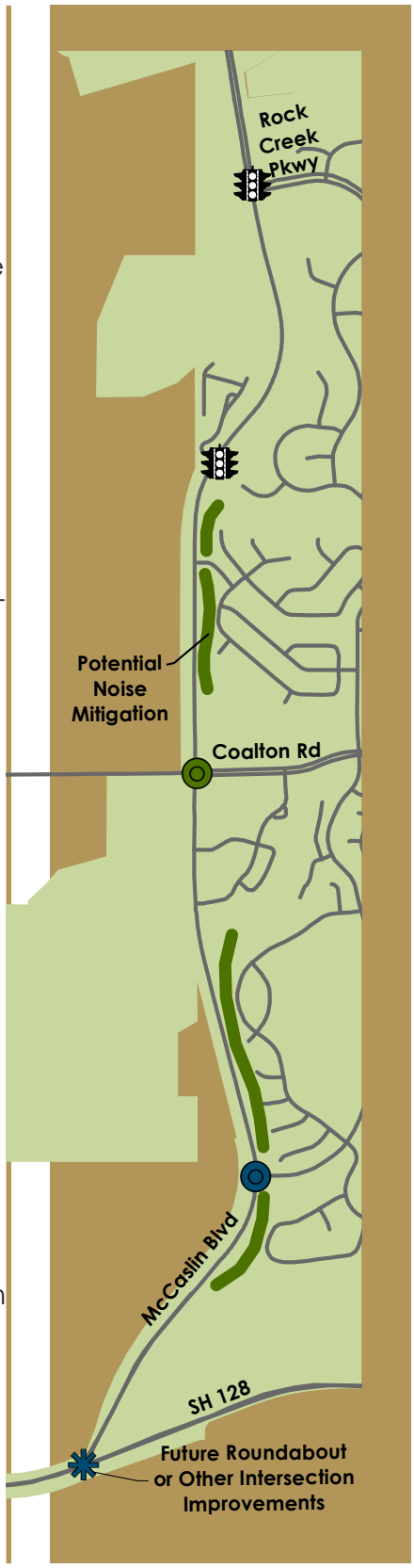
This major north-south route in Superior connects US 36 on the north with SH 128. It has four lanes north of Rock Creek Parkway and two lanes south to SH 128. The gradient of McCaslin Boulevard is steep in many places, and its T-intersection with SH 128 is awkward. McCaslin currently has traffic flow of 10,000 to 30,000 vehicles per weekday and carries both regional and local traffic. The road is important because it currently serves as the only link between Superior neighborhoods and lands west and south.

The McCaslin Blvd/Marshall Road intersection is one of the busiest intersections and a key element of economic vitality within the Town. Several movements, including the eastbound left-turn, operate at poor levels of service during peak hours, with traffic back-ups blocking access onto Marshall Road. To improve operations, the intersection should be improved to include triple-left turn lanes on the eastbound approach, double-left turn lanes on the other three approaches and three through lanes on McCaslin Blvd in both directions.

The northern portion of McCaslin creates the gateway to the Town of Superior from the heavily travelled US 36 Corridor. This is a commercial area, bounded by the Superior Marketplace to the west, and commercial development to the east. Master planning for the new mixed-use, high density Superior Town Center is currently underway for much of the land on the east side of the corridor in this area.

On the east side of the corridor lays Rock Creek Ranch, a large master planned community consisting primarily of single family homes. The landscape character for Rock Creek Ranch is irrigated with manicured bluegrass and informal tree masses.

The west side of the McCaslin Corridor immediately south of the Rock Creek Parkway intersection includes office, multi-family residential and an undeveloped parcel slated for office development. Farther south and on the west side of McCaslin Boulevard is Boulder County Open Space. This area consists of rolling landforms, non-irrigated native grasses, and occasional drainages with native masses of cottonwoods. Topography is also varied, in-



cluding areas of steep embankments on both sides, to areas of gentle topography that provide excellent open views in all directions.

To acknowledge the northern and southern boundaries of the McCaslin Corridor, and to help move traffic smoothly and efficiently through the study area, roundabouts are recommended at the intersection with Main Street at the Superior Town Center on the north, and at the intersection with Indiana Street on the south. Both of the roundabouts should create a sense of entry into the Town, and will slow traffic while allowing anticipated traffic volume to efficiently move through the area.

Any roadway improvements should be carefully designed to provide a safe, efficient, and varied user experience for vehicles, bicycles, and pedestrians. Wherever possible, roadway design controls should be employed to not allow vehicle speeds to exceed 45 mph. Careful attention should be given to roadway segments that have homes nearby. Noise evaluations should be conducted to determine if effective noise mitigation measures can be implemented. If noise mitigation measures are installed, natural materials should be utilized such as berms, trees and other landscaping.

The McCaslin corridor is an important connection for cyclists throughout the region, and is used by residents accessing open space and trails to the west. Future improvements should ensure that the pedestrian and bicyclist experience is safe, comfortable and attractive. On-Street and Off-Street connections should be considered as reflected in the *Bikeway and Trails Plan*.

State Highway 128

Defining the south edge of the Superior planning area, SH 128 (designated 120th Avenue in Broomfield) provides major east-west access from SH 93 in Boulder County to US 287 in Broomfield. East of US 287, 120th Ave has recently been extended over US 36 to Old Wadsworth. The intersection of SH 128 and McCaslin Boulevard should be studied for consideration of ways to improve traffic flow to and from Superior via SH 128.

Interlocken Loop

Interlocken Loop in Broomfield provides an important north-south alternative for Superior residents and regional traffic. This major arterial connects to SH 128 (120th Avenue) on the south and to US 36 at a full movement interchange.

Minor Arterials:

Coalton Road

Coalton Road is a minor arterial through the Town of Superior, linking McCaslin Boulevard with Interlocken Loop and the City of Broomfield. A roundabout was constructed at the intersection with McCaslin Boulevard in 2010. Coalton Road becomes Flatirons Crossing Drive in Broomfield.

Rock Creek Parkway

This minor arterial extends from its intersection with McCaslin Boulevard south to Coalton Road. Rock Creek Parkway is one of the major spine roads through Rock Creek. Due to its suburban design with four lanes and turn lanes, pedestrian crossings are difficult. Mid-block pedestrian crossings or additional controls at intersections should be considered.

Marshall Road

Marshall Road is a state highway (SH 170), which presently serves as a connection from McCaslin Blvd to Cherryvale Road and SH 93 to the west. Within the Town of Superior, Marshall Road has been relocated where it intersects with McCaslin Boulevard. Within the planning area, Marshall Road serves the RTD Park-n-Ride lot, the Superior Marketplace, and the Colorado Department of Transportation maintenance facility. East of McCaslin Boulevard, Marshall Road will be extended into the Town Center.

Marshall Road

88th Street

88th Street provides secondary north-south access between Superior and the City of Louisville. It is a two lane minor arterial connecting Rock Creek Parkway on the south with Dillon Road on the north. It crosses US 36 at an overpass and connects the Town with Avista Hospital, Monarch K-8 and Monarch High Schools in Louisville. The 88th Street intersection with Rock Creek Parkway was improved to include a roundabout in 2004. A pedestrian activated stoplight was installed in 2012 just south of the US 36 bridge to address safety concerns regarding children attending the Monarch schools. Future improvements include the addition of curb, gutter and sidewalk along the east side to complete the bicycle and pedestrian connections. Also included are left-turn lanes at intersections.

88th Street
Pedestrian Crossing

Major Collectors:

Indiana Street

A second "spine road" serving Rock Creek Ranch, Indiana Street extends south from Rock Creek Parkway to Coalton Road and then loops back to McCaslin Boulevard south of Coalton Road.

76th Street

76th Street extends south from its intersection with Marshall Road to Coal Creek Drive to serve developments west of Original Superior. Future improvements include the addition of curb, gutter and sidewalk along the west side. In addition, the segment along Sagamore south to Coal Creek Drive was constructed as a four lane street which is no longer needed for projected traffic volumes. Adding a landscaped median, on-street parking near Founders Park and a four-way stop at Sycamore Street would provide traffic calming features, as shown to the right. On-Street bike lanes should also be provided on the entire length of 76th Street,

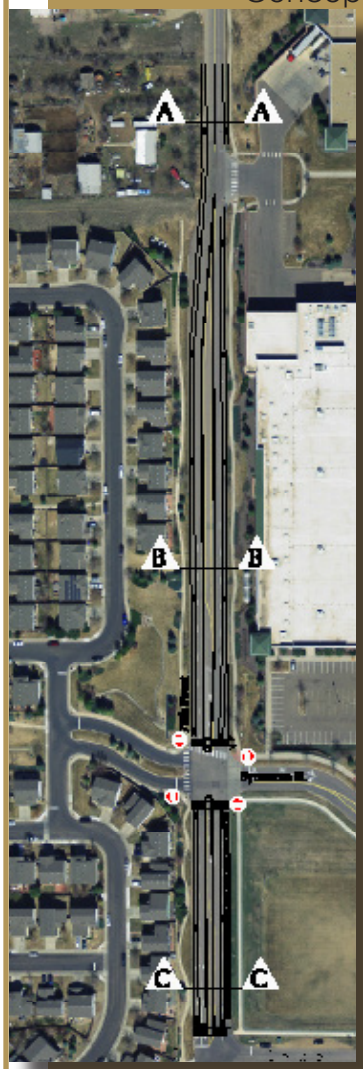
South Coal Creek Drive

Located east of McCaslin Boulevard in Rock Creek, Coal Creek Drive presently extends north from Rock Creek Parkway to a stub end. This street was originally intended to proceed north and then west to intersect with either Coal Creek Drive in Original Superior or Marshall Road. Thus, this street was so named during the early platting of the northern filings in Rock Creek. This street is currently proposed to extend north and west to connect with Superior Town Center. It is intended to serve a minor collector street function with a bicycle/pedestrian way along its entire length. On land north of Rock Creek, the roadway will be designed to discourage high speed short-cut access through this part of the community through the use of traffic calming, roundabouts, and other techniques. Since the current street has an 80-foot ROW, the number of through lanes can be kept to two with the development of a landscaped median, bicycle lanes and pedestrian paths. These design options can be utilized to focus on a pedestrian/bicycle link between Rock Creek and Original Superior as a major function of this street while de-emphasizing through vehicle traffic.

Campus Dr/Health Park Dr Extension

The Superior Town Center will create a strong desire for travel between the Center's commercial and residential areas and the south Louisville area, including Avista Hospital, the Monarch schools, and the former StorageTek site. Discussions with the City of Louisville led to agreement about the potential for extending Campus Drive west through the Avista Hospital property, over US 36 by means of an overpass and into the Superior Town Center.

South 76th Street Concepts



Section A-A

Section B-B

Section C-C

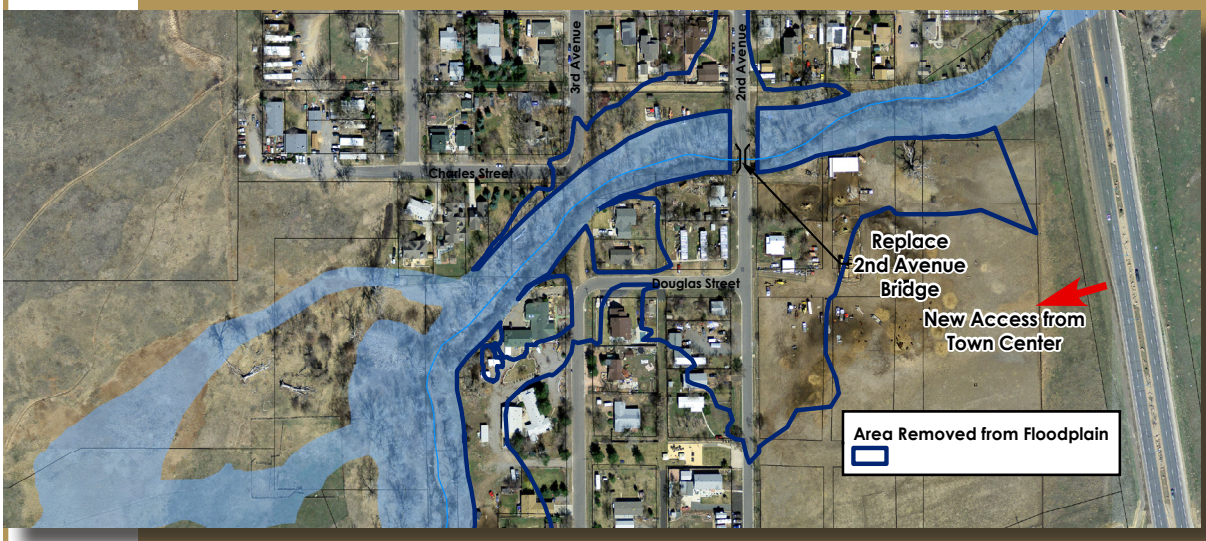
South Original Superior Access

Bridge at 2nd Avenue During 2013 Flood Event

Bridge at McCaslin During 2013 Flood Event

Coal Creek bisects Original Superior which was platted over a hundred years ago before the advent of modern floodplain management practices. 2nd and 3rd Avenues were extended across Coal Creek with bridges or culverts designed to accommodate low flows. These sometimes washed out during major floods. A culvert on 3rd Avenue washed out in 1983 and was not replaced leaving the south part of Original Superior with only one crossing of Coal Creek at 2nd Avenue. Various studies have shown that this bridge does not have the capacity to accommodate flows from the 100-year storm. This was proven when Coal Creek overtopped the bridge during the major flood event of September 12, 2013. Various options were considered for providing better access to south Original Superior in 2013. The consensus plan included replacing the 2nd Avenue Bridge with a new structure designed to pass the 100-year flood flow; providing a second access to McCaslin Boulevard at the proposed Town Center roundabout; and in the long term, a potential new bridge crossing Coal Creek at 3rd Avenue.

Access options for South Original Superior with Floodplain Improvements



Roundabouts

A roundabout is a form of circular intersection in which traffic travels counterclockwise around a central island and in which entering traffic must yield to circulating traffic. **Roundabouts have been demonstrated to be safer than other forms of at-grade intersections.** The safety benefit is particularly notable for fatal and injury crashes. The Town of Superior has three roundabouts: Center Drive/5th Avenue, Rock Creek Parkway/88th Street and McCaslin Boulevard/ Coalton Road. These were constructed because the Town recognized the safety benefits of roundabouts. These safety benefits are detailed in Roundabouts, An information Guide, Second Edition, 2010 published by the Transportation Research Board with excerpts provided below.

Typical Roundabouts Provide:

Increased safety for vehicles, pedestrians and bicycles

Reduction in environmental impacts

Lower operational and maintenance costs

Traffic calming effects

Improved aesthetics

Safety - Vehicles

The safety performance of a roundabout is a product of its design. At roundabouts, vehicles travel in the same direction, eliminating the right-angle and left-turn conflicts associated with traditional intersections. In addition, good roundabout design places a high priority on speed control. Speed control is provided by geometric features, not just by traffic control devices or by the impedance of other traffic. Because of this, speed control can be achieved at all times of day. If achieved by good design, in principle, lower vehicle speeds should provide the following safety benefits:

- ***Provide more time for entering drivers to judge, adjust speed for, and enter a gap in circulating traffic, allowing for safer merges;***
- ***Reduce the size of sight triangles needed for users to see one another;***
- ***Increase the likelihood of drivers yielding to pedestrians (compared to an uncontrolled crossing);***
- ***Provide more time for all users to detect and correct for their mistakes or mistakes of others;***
- ***Make crashes less frequent and less severe, including crashes involving pedestrians and bicyclists;***
- ***Make the intersection safer for novice users.***

Traffic Operations

The operation of vehicular traffic at a roundabout is determined by gap acceptance: entering vehicles look for and accept gaps in circulating traffic. The low speeds of a roundabout facilitate this gap acceptance process.

When operating within their capacity, roundabouts typically operate with lower vehicle delays than other intersection forms and control types. With a roundabout, it is unnecessary for traffic to come to a complete stop when no conflicts are present. When there are queues on one or more approaches, traffic within the queues usually continues to move, and this is typically more tolerable to drivers than a stopped or standing queue. The performance of roundabouts during off-peak periods is particularly good compared with other intersection forms, usually with very low average delays.

Roundabouts tend to treat all movements at an intersection equally, with no priority provided to major movements over minor movements. Each approach is required to yield to circulating traffic, regardless of whether the approach is a local street or major arterial. This may result in more delay to the major movements than might otherwise be desired.

Environmental Factors

Roundabouts can provide environmental benefits if they reduce vehicle delay and the number and duration of stops compared with an alternative. Even when there are heavy volumes, vehicles continue to advance slowly in moving queues rather than coming to a complete stop. This may reduce noise and air quality impacts and fuel consumption significantly by reducing the number of acceleration/deceleration cycles and the time spent idling.

Operation and Maintenance Costs

Compared to signalized intersections, a roundabout does not have signal equipment that requires constant power, periodic light bulb and detection maintenance, and regular signal-timing updates. Round

Coalton Road & McCaslin Blvd

5th Avenue & Center Drive

Rock Creek Parkway & 88th Street

abouts, however, can have higher landscape maintenance costs depending on the degree of landscaping provided on the central island, splitter islands, and perimeter. Illumination costs for roundabouts can be greater than for signalized intersections due to a larger area required for coverage. Drivers sometimes face a confusing situation when they approach a signalized intersection during a power failure, but such failures have minimal temporary effect on roundabouts or any other unsignalized intersections, other than the possible loss of illumination.

Additional Roundabouts in Superior

Superior's experience with roundabouts has been positive. Although residents occasionally are concerned about driving through the Town's roundabouts, observed delays are minimal and there have been relatively few accidents. The Town has established long range goals for traffic calming on McCaslin Boulevard and other Town streets. Given the Town's experience and long range goals, the following have been identified as potential roundabout locations, which are also shown on the Roadway Plan:

- ***McCaslin Boulevard/Main Street (Superior Town Center Access)***
- ***Main Street (Superior Town Center)***
- ***McCaslin Boulevard/Indiana Street***

Other Modes of Transportation

The Town will work with RTD, Boulder County, and its surrounding jurisdictions to improve transit and alternative mode programs and facilities. Potential programs, project and activities could include:

Local Bus Stops
Continue improvement of local bus stops through the installation of passenger shelters and other amenities.

Superior Town Center
Provide a mini-transportation hub within the Superior Town Center that provides access to a variety of transportation options in a centralized location including bus stop, bike parking, bike share, car share, e-car charging and transportation information kiosk.

Call-n-Ride
Work with RTD to re-institute Call-n-Ride within Superior.

Town-Wide Shuttle
Undertake a feasibility study examining the implementation of a Town wide shuttle. This shuttle may operate independently of RTD, potentially with business sponsorship, and should circulate through major residential areas and among major developments and transit stops, including Superior Marketplace, Superior Town Center, Rock Creek Village, the McCaslin park-n-Ride, and the Flatirons park-n-Ride to allow for connection to a future train stop.

Express Bus Service from McCaslin park-n-Ride to DIA
Work with RTD to provide a future direct express route from the McCaslin BRT station to Denver International Airport.

Additional Bus Service
Work with RTD, Boulder County and the City of Louisville to provide bus service along the 88th Street/ Rock Creek Parkway corridor.

Car and Bike Share
Investigate car sharing and bike sharing programs.

Bus Shelter on Rock Creek Parkway Route 228

Bike Sharing

EVSE at Superior Town Hall

Electric Vehicle Support

Install additional electric vehicle charging stations.

First and Final Mile

Work with RTD, the City of Louisville and US 36 Stakeholders to implement the recommendations from the *US 36 First and Final Mile Study* including:

- *Providing a grade separated underpass of McCaslin as part of the McCaslin DDI Interchange project*
- *Improving wayfinding signing and markings to and from the park-n-Ride lots and the surrounding street network*
- *Developing a mini-transportation hub at the McCaslin park-n-Ride that provides access to a variety of transportation options in a centralized location including bike share, car share, e-car charging, and secure bike parking, bike vending and tool kiosk*
- *Providing "Bike then Bus" Secure Bike Parking at the McCaslin BRT station*
- *Evaluating a First and Final Mile EcoPass Program*

call-n-Ride Bus

Pedestrian Bridge at McCaslin park-n-Ride

Bus Then Bike Shelter

Bikeway and Trails Plan

The Town of Superior places high priority on alternative transportation, including walking and bicycling. A well-developed network exists in Superior and the Plan below details its expansion, increasing connectivity within the Town and throughout the region. This plan is annually updated by the Parks, Recreation, Open Space, & Trails Advisory Committee, the Opens Space Advisory Committee, Town staff and residents.

Figure 11: Bikeway and Trails Plan