



2005 BROOMFIELD TRANSPORTATION PLAN

Prepared for:

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INTRODUCTION

The 2005 Broomfield Transportation Plan supports the transportation element of the 2005 Comprehensive Plan and provides technical information that can be used as a basis for formulating transportation related policies. The last transportation plan for Broomfield was completed in concert with the Comprehensive Plan in 1995. Since that time, many elements of the community have changed including an expanded planning area resulting from the formation of the City and County of Broomfield, substantial growth and completion of new roadways. Plans for continuing development are supported by recent Sub-Area plans along with the progress of several Environmental Impact Statements in regional corridors of importance.

The primary purpose of this document is to provide technical information that can be used as a basis for formulating transportation related policies. This plan summarizes existing transportation conditions within Broomfield, and provides household and employment forecasts for 2015, 2030 and Buildout. It supports Broomfield in planning an efficient and well-maintained multi-modal transportation system that serves all segments of the population.

A major theme of the Comprehensive Plan is to create a walkable and multi-modal community that is the cornerstone to an active and thriving place to work and live. The goals, policies and action steps included in the Comprehensive Plan will shape Broomfield's future transportation system and address:

- ▶ Providing additional capacity on roadways to handle existing and projected traffic.
- ▶ Enhancing internal east-west and north-south roadway connections within the community. The completion of priority projects, including the completion of the Sheridan Parkway and Northwest Parkway, and construction of the 120th Avenue Connection over U.S 36, W. 112th Avenue reconstruction over U.S. 36, construction of the Midway Extension and planned Northwest Corridor will begin to meet existing and forecasted needs.
- ▶ Promoting and developing transportation alternatives to reduce dependence on the automobile.
- ▶ Creation of an interconnected transportation system facilitating safe travel for pedestrians, bicyclists and vehicles and that provides linkages to neighboring communities.
- ▶ Encourage livable streets that utilize traffic management and traffic calming to keep traffic out of neighborhoods.
- ▶ Participating in and influencing regional transportation planning to enhance regional mobility and improve Broomfield's accessibility to the regional transportation network.
- ▶ Using the transportation system and innovative street design to support and complement the Broomfield's land use and economic development plans and policies.

In addition to this plan, Broomfield's Standards & Specifications for Design and Construction of Public Improvements should be utilized for specific design criteria, construction specifications and traffic control requirements.



INVENTORY OF EXISTING TRANSPORTATION SYSTEM

Roadway Network

Functional Classification

A roadway network is comprised of a hierarchy of roadways whose functional classifications are defined by their usage. In general, streets serve two functions; they provide access and mobility. The relative degree to which a road serves these functions defines its functional classification. In order of their ability to provide mobility, the roadway functional types are more thoroughly described as follows:

Freeways and Tollways

Freeways and tollways primarily serve long distance travel between major communities. Freeways provide the greatest mobility, with strictly controlled access allowed only at interchanges. No direct property access is allowed.

Major and Minor Arterials

Arterials carry longer-distance traffic flow for regional, intercommunity and major commuting purposes. Arterials have a limited number of at-grade intersections and, when other alternatives do not exist, direct property access. Arterials tend to carry significant traffic volumes at higher speeds for longer distances, and are seldom spaced closer than one-mile intervals.

Connectors

Connector streets link local streets with the arterial street system. Mobility and access are of equal importance on these roadways. Travel speeds and volumes are moderate and distances traveled are short to medium. Traffic on connector streets typically has an origin or destination within the nearby area. Broomfield typically does not provide direct property access to connector streets unless it complements the overall development plan.

Local Roads

The primary function of local roads is to provide access to adjacent land uses, whether it be residences, businesses, or community facilities. Local streets generally are internal to or serve an access function for a single development. Traffic using local roads should have an origin or destination within the development.

Figures 1 illustrate the existing roadway functional classifications along with the number of through lanes.

LEGEND

-  = Number of Through Lanes
-  = Existing Interchange
-  = Freeway / Tollway
-  = Major Arterial
-  = Minor Arterial
-  = Connector
-  = Broomfield Boundary

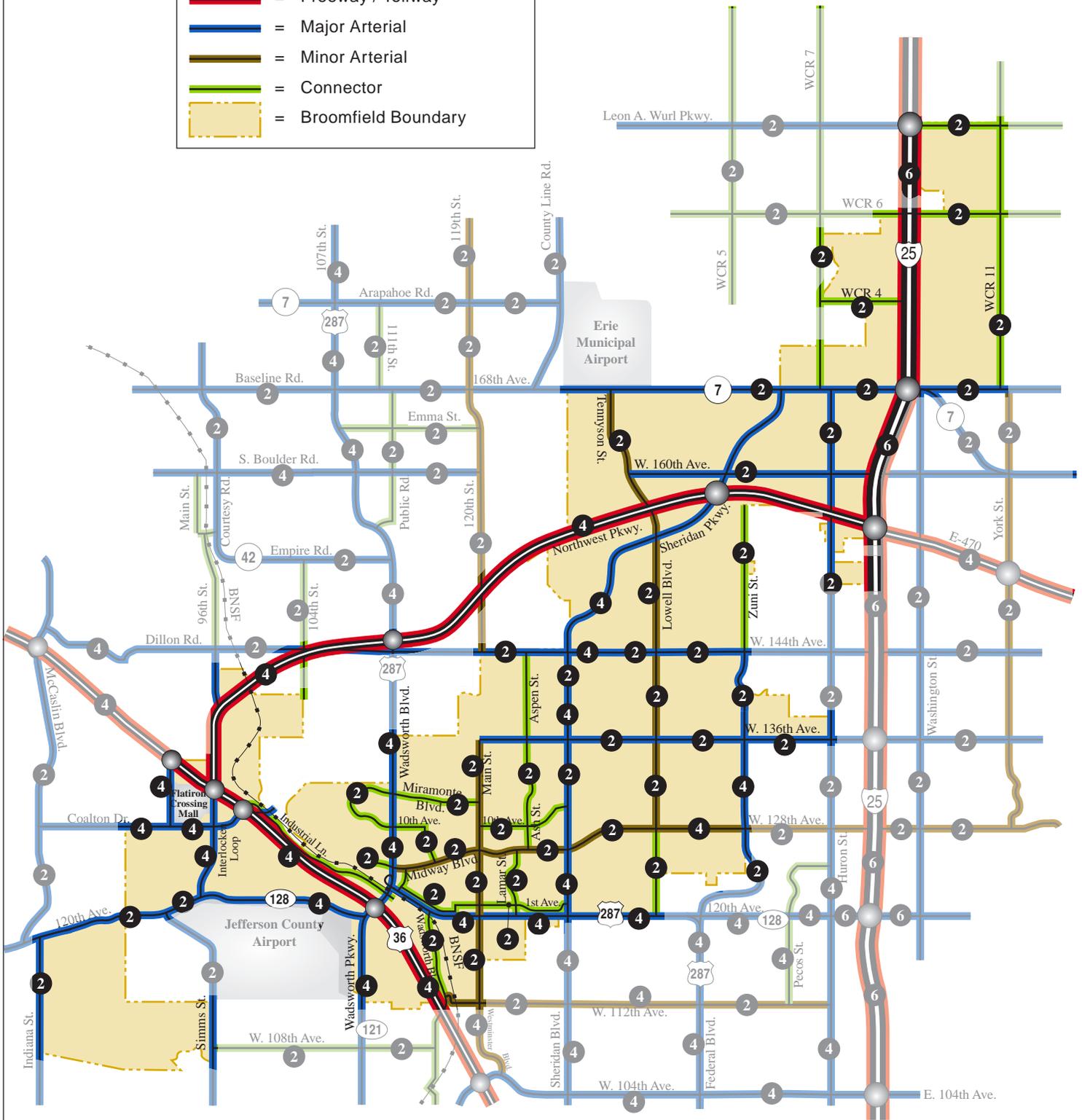


Figure 1
Existing (2004) Roadway Laneage
and Functional Classification





Traffic Volumes

Traffic volumes indicate the relative usage of a roadway in an area. When compared to the capacity of a roadway, the traffic volume also reveals generally how well a road is functioning (level of service) and if improvements to increase capacity are necessary.

The most commonly used measurement of traffic volume is Average Daily Traffic (ADT). ADT is defined as the total number of vehicles passing a certain point in both directions in a 24-hour period. The City and County of Broomfield maintains a database of daily traffic volume counts recorded in 2003, 2004 and 2005 which is updated on an on-going basis. Counts outside of Broomfield's jurisdiction have been obtained from the Colorado Department of Transportation (CDOT) and local City and/or Counties surrounding Broomfield. These counts were recorded between 2001 and 2004. Figure 2 shows the existing traffic volumes.

Volume to Capacity Ratios

One measure that is used to define operational characteristics is volume to capacity ratio (v/c). The measure compares the capacity of the street, as it is designed and constructed, to the volume of traffic it carries, or is projected to carry in the future. It is anticipated that roadways will experience higher v/c ratios during peak hour commuting periods and, conversely, lower v/c ratios during non-peak travel times.

The planning-level daily capacity thresholds shown in Table 1 are the basis for the v/c ratios developed in this planning effort. These design and maximum roadway capacities are based on the functional classification and the number of through lanes of a roadway and relate to the cross-sections included in the City and County of Broomfield Standards and Specifications for Design and Construction of Public Improvements (2001). Roads with lower functional classifications and few lanes would be expected to accommodate fewer vehicles per day, while roads with higher functional classification (freeway or tollway) would be expected to accommodate more vehicles.

Volume to capacity ratios are used to describe congestion on street segments. This planning level measure does not take into account delay at signalized intersections and is only based upon total daily traffic volumes with no consideration to peak hour spikes in traffic.

LEGEND

- XX.X = Existing Daily Traffic Volume (in thousands)
- = Broomfield Boundary

NOTE: All counts shown within the City and County of Broomfield are 2003, 2004 or 2005

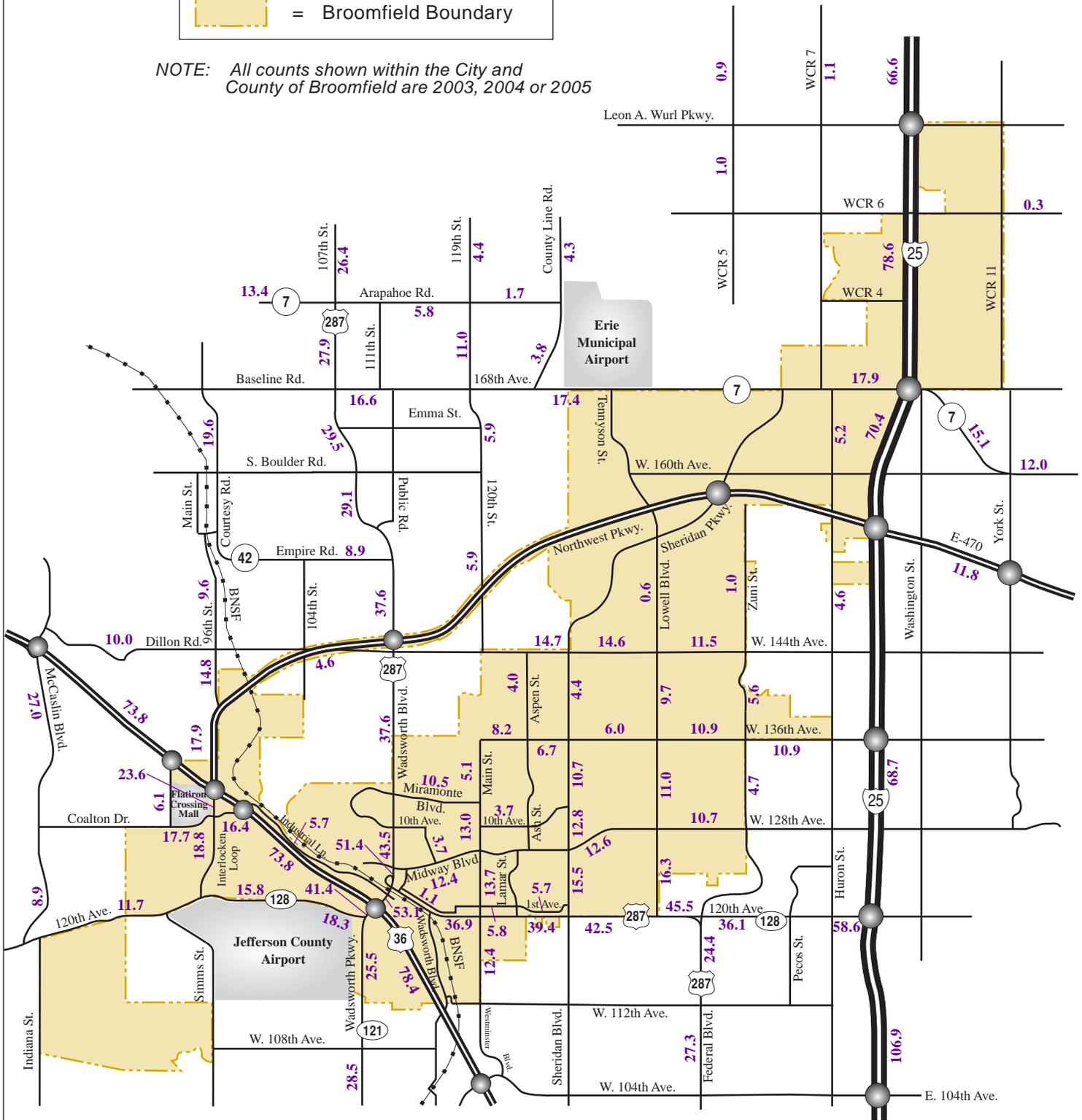


Figure 2

Existing (2001 - 2005) Daily Traffic Volumes





Table 1. Average Daily Roadway Capacities

Functional Classification	Through Lanes	Maximum Capacity (Vehicles per Day)	Design Standard (Vehicles per Day)
Freeway	4-Lane	80,000	60,000
	6-Lane	120,000	95,000
	8-Lane	160,000	130,000
Major Arterial	2-Lane	16,000	13,000
	4-Lane	32,000	26,000
	6-Lane	48,000	39,000
Minor Arterial	2-Lane	12,000	10,000
	4-Lane	24,000	20,000
Connector	2-Lane	10,000	8,000
	4-Lane	20,000	16,000
Local	2-Lane	2,000	1,500

The v/c ratios calculated for streets within the study area are graphically depicted on Figure 3. These ratios have been calculated using the existing average daily traffic volumes shown on Figure 2 and the maximum roadway capacities provided in Table 1. The red segments represent roadways which carry traffic volumes in excess of the planning-level roadway capacity ($v/c \geq 1.3$), the orange segments represent roadways operating at slightly over capacity conditions (v/c between 1.0 and 1.3), the yellow segments represent roadways operating at near capacity conditions (v/c between 0.8 and 1.0), and the green segments represent roadways which operate below capacity ($v/c < 0.8$). Several roadway segments within the City and County of Broomfield currently operate at above capacity conditions. Such roadways include portions of W. 120th Avenue, Midway Boulevard/W. 128th Avenue, Miramonte Boulevard, S.H. 7, Wadsworth Boulevard, Main Street and Lowell Boulevard. Several other roadway segments operate at near capacity conditions.

Accidents

Figure 4 illustrates the accident data reported by the City and County of Broomfield over the last three years between January 2002 and December 2004. As shown, the highest number of accidents occurred at the I-25/S.H. 7 and U.S. 36/Wadsworth Boulevard interchanges during this time period. On the surface street system, the intersections of Wadsworth Boulevard/Midway Boulevard, Sheridan Boulevard/W. 120th Avenue, and Wadsworth Parkway/W. 120th Avenue incurred the highest number of accidents over the three year period.

LEGEND

- x.xx = Volume to Capacity (v/c) Ratio
- = $v/c \geq 1.3$ (Over Capacity)
- = $1.0 \leq v/c < 1.3$ (Slightly Over Capacity)
- = $0.8 \leq v/c < 1.0$ (Near Capacity)
- = $v/c < 0.8$ (Below Capacity)
- = No Data Available
- = Broomfield Boundary

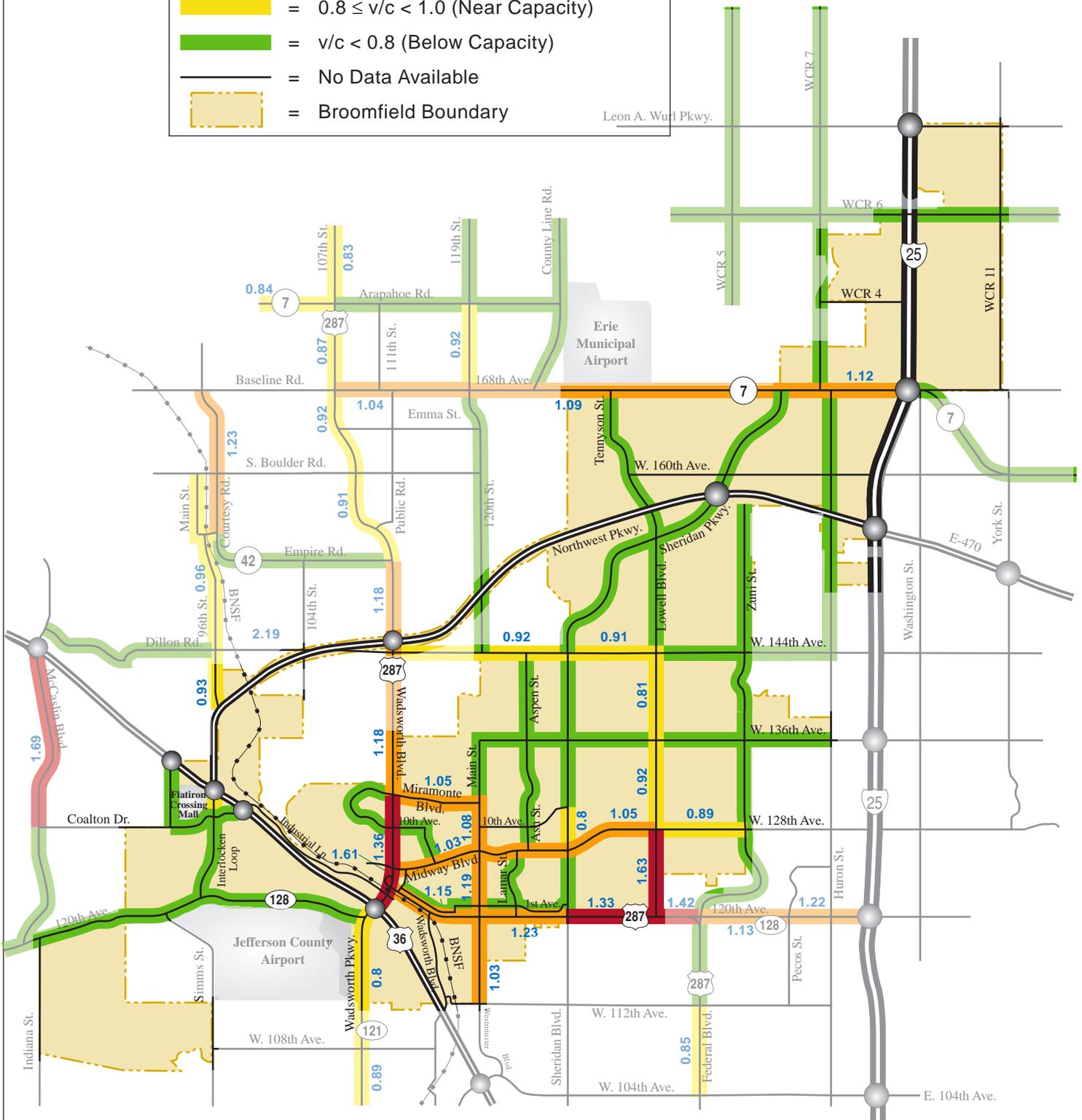


Figure 3
Existing Daily Volume to Capacity (v/c) Ratios

Intersections Not Shown	No. of Accidents
W. 120th Ave. / Chase St.:	70
U.S. 287 / W. 6th Ave.:	37
U.S. 287 / W. 5th Ave.:	36
Flatiron Cir. E. / Flatiron Marketplace Dr.:	27
Interlocken Blvd. / Interlocken Loop:	26
Flatiron Cir. W. / Interlocken Blvd.:	25
W. 120th Ave. / Quay St.:	19
Midway Blvd. / Garden Center:	18
W. 120th Ave. / Reed St.:	16
W. 120th Ave. / Vance St.:	16
U.S. 287 / Marble St.:	15

LEGEND

XX = Number of Accidents if more than 15 (January 2002 - December 2004)

 = Broomfield Boundary

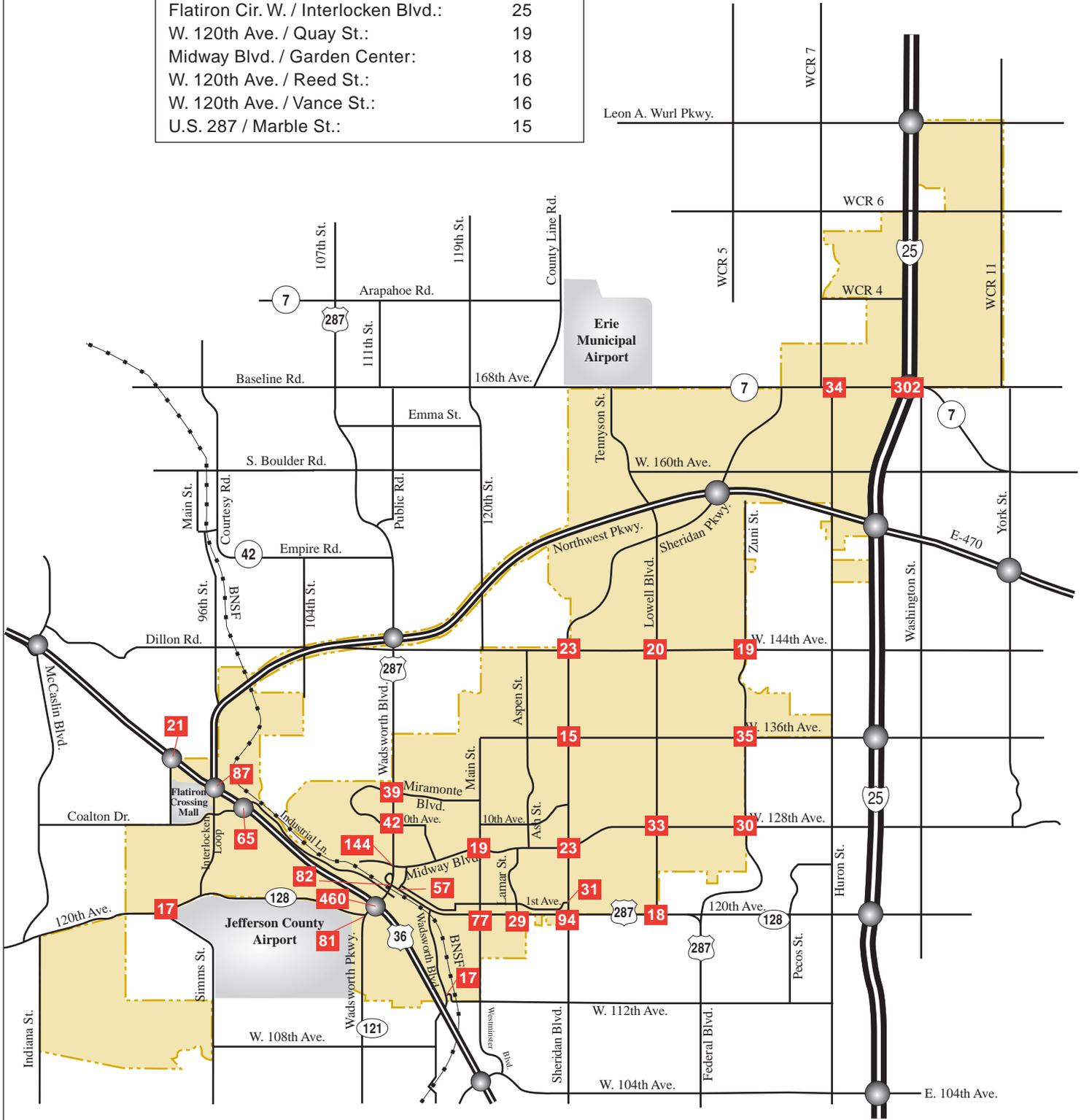


Figure 4

Accident History (2002 - 2004)





Transit Services

A number of transit services currently operate within the City and County of Broomfield. Public and private transit operation is described below.

RTD Routes and park-n-Rides

Broomfield is part of the Regional Transportation District (RTD) and is served by a combination of conventional and demand responsive bus services. All of RTD's services are wheelchair accessible.

Conventional bus service operates on a fixed route and schedule (for example, every 30 minutes). RTD provides regional bus service to the airport, Boulder and Denver, as well as local service moving people within Broomfield and transporting them to adjacent communities. At this time, eleven RTD bus routes serve Broomfield.

RTD has piloted call-n Ride demand responsive service in Broomfield. Call-n-Ride service is not limited to a fixed schedule or the places it can take people (within a designated geographic area). Call-n-Ride uses small vehicles which provide curb to curb pick up and delivery of passengers within a designated zone of approximately six square miles. The service cannot take people though more than one call-n-Ride zone, but transfers can be arranged between call-n-Ride areas, along with transfers to conventional buses and to park-n-Rides. This service can take passengers from home to work, home to services, and home to activities. The fare is the same as conventional local service with discounts for senior citizens, the disabled, Medicare patients, and students. Passengers must call to schedule a trip, but repeat trips and regular schedules can be set up in advance. This service functions best to move people within a designated area.

There are two park-n-Ride facilities within the City and County of Broomfield. The Broomfield park-n-Ride is located at the southeast corner of Wadsworth Parkway and State Highway 128. The Flatiron park-n-Ride is located adjacent to the intersection of E. Flatiron Circle and Industrial Lane. Four other park-n-Ride facilities are in close proximity to Broomfield, including the Wagon Road, Church Ranch, Superior/Louisville and Lafayette park-n-Rides.

Figure 5 illustrates local RTD routes, park-n-Ride locations, and the areas served by call-n-Ride.

Senior Services

RTD operates SeniorRide, designed to provide the opportunity for seniors fifty-five years of age and older to attend a variety of cultural events and activities. Groups of 10 or more can arrange for transportation to a variety of cultural and special events throughout the Denver metropolitan area.

LEGEND			
	= Route 51		= RTD call-n-Ride Area 5:30am - 10:00pm
	= Route 76		= RTD call-n-Ride Area 5:30am - 8:00pm
	= Route 120		= RTD call-n-Ride Area 9:00am - 3:00pm & 6:00pm - 8:00pm
	= Route 128		= Broomfield Boundary
	= Route 228		
	= Zip Shuttle		

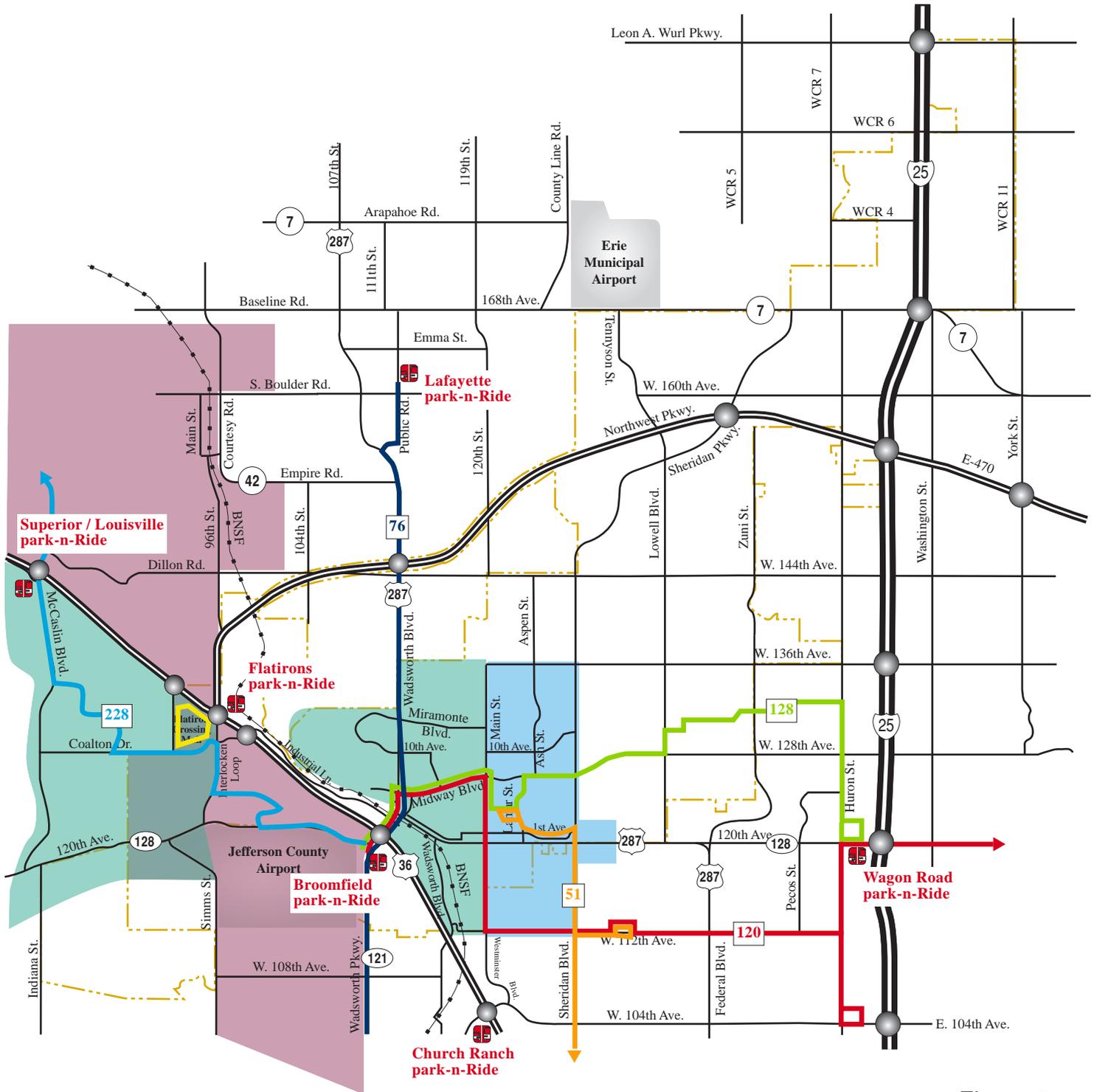


Figure 5
Existing Local Transit Service





Broomfield operates Easy Ride as a Division of Health and Human Services. It provides local door-to-door transportation for senior and disabled residents. Shopping, medical and personal trips can be scheduled in advance.

Access-a-Ride

Access-a-Ride provides curb-to-curb transportation to passengers who are unable to use conventional RTD bus service, and pre-qualify to use this service under the guidelines established by the Americans with Disabilities Act (ADD) of 1990. Special Transit is the private, non-profit transit operator of Access-a Ride services in Broomfield.

Special Transit

Special Transit also provides transit services that fill the gap for people unable to use conventional bus services or qualify for Access-a-Ride. Service is available five days a week, by appointment, for employment, medical, volunteer and other travel needs.

Zip Shuttle

The Zip Shuttle is a free service operated by the FlatIron Improvement District in partnership with Broomfield. The shuttle circulates through the FlatIron shopping district, providing an easy connection between FlatIron Crossing, FlatIron Marketplace and Main Street at FlatIron. The Zip Shuttle operates every day of the week.

Bicycle and Pedestrian Facilities

Broomfield is building an interconnected bike and pedestrian system that facilitates safe travel throughout Broomfield and linkages to neighboring communities. The network facilitates commuting to work and school, as well as recreational opportunities. Existing bicycle, pedestrian and multi-use facilities are illustrated on Figure 6. They include multi-use paths and sidewalks within many neighborhoods and activity areas as well as soft surface trails that are primarily used for recreation. On-street bike lanes and/or detached multi-use paths are provided in numerous areas. However, current facilities are discontinuous and do not serve all parts of Broomfield.

The Open Space Parks, Recreational and Trails Master Plan provides direction on the system that meets community needs. Broomfield's Standards and Specifications document should be referenced for design and planning of pedestrian and bicycle facilities.

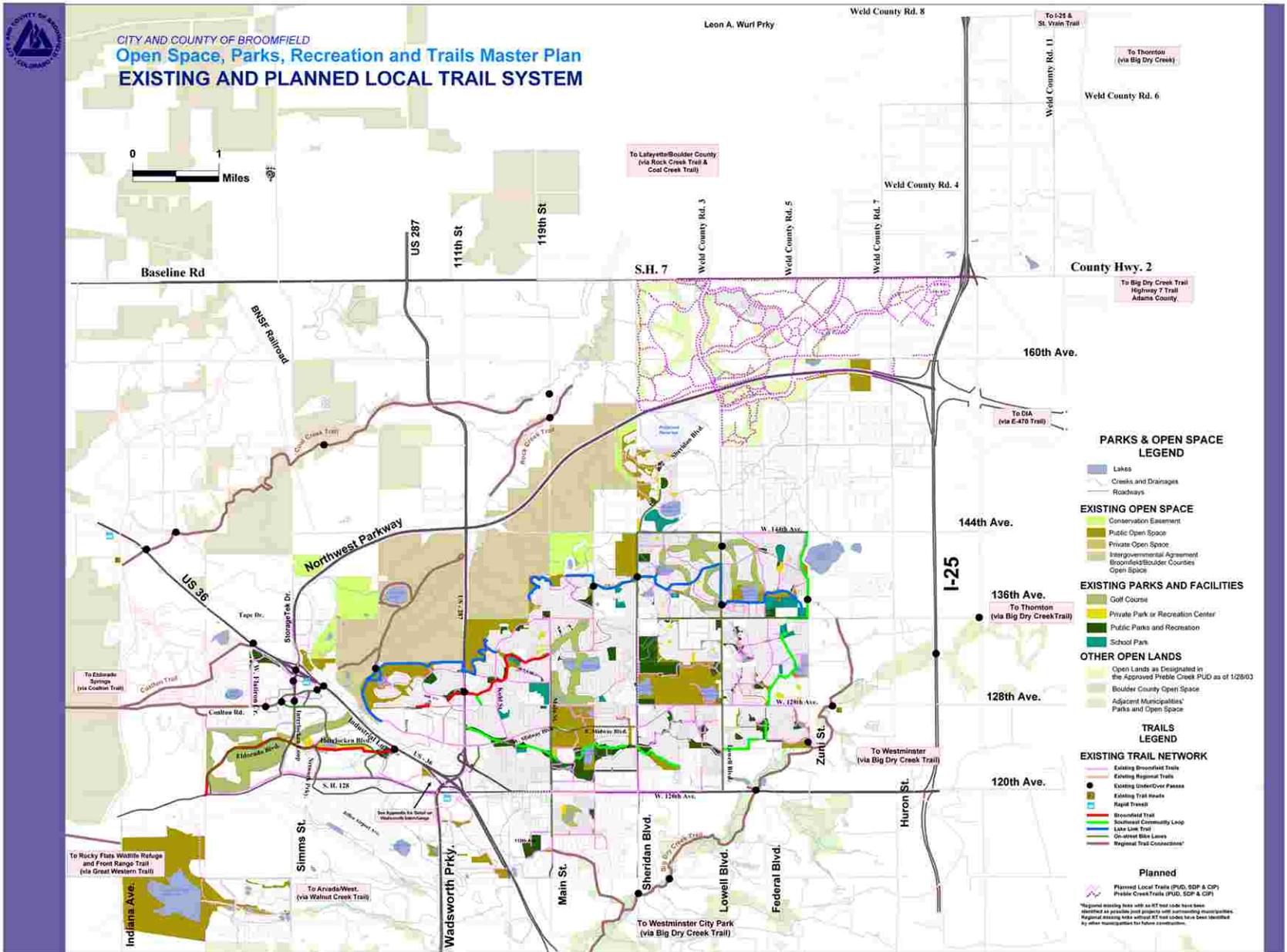


Figure 6
Existing Trail System



North



FORECASTS

In order to properly identify potential improvement projects for the transportation system in Broomfield, it is important to first understand the nature and volume of traffic in the study area in the future. It is also useful to understand existing traffic flow patterns, as presented in the previous section. The analysis of future traffic volumes for the Broomfield study area is based on the 2030 regional transportation model development by the Denver Regional Council of Governments (DRCOG). This computerized model includes the entire seven-county Denver region. It was used as a basis for the Broomfield forecasts because it provides the context of Broomfield in relation to the rest of the Denver region.

Land Use Forecasts

Demographic data sets, including household and employment estimates and forecasts associated with a system of transportation analysis zones (TAZs), form the basis for travel demand forecasting. DRCOG regional household and employment estimates for 2005 and forecasts for 2030 were used as an initial basis. DRCOG's regional model divides the Denver metro area into 2,664 TAZs, 86 of which are in the City and County of Broomfield, as shown on Figure 7.

The DRCOG 2030 household forecasts in the Broomfield TAZs have been used in the travel demand modeling process for this Transportation Plan. It is anticipated that the level of household growth represented by the 2030 forecasts represents buildout of the City and County of Broomfield. Therefore, as shown in Table 2, the 2030 and Buildout household forecasts are identical. For comparative purposes, the 2005 household estimates and the 2015 household forecasts by TAZ are also provided in Table 2. The 2030 household forecasts represent a 77% increase over the 2005 household estimates. This increase equates to an annualized growth rate of approximately 2.3% per year.

Table 2. Household Forecasts

TAZ	2005	2015	2030	Buildout
2490	16	51	111	111
2491	285	311	357	357
2492	0	0	0	0
2493	269	290	327	327
2494	4	155	436	436
2495	0	0	0	0
2496	0	0	0	0
2497	9	9	9	9
2498	7	7	7	7
2499	5	147	463	463
2500	3	3	3	3
2501	0	0	0	0
2502	0	0	0	0



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Table 2. Household Forecasts (Continued)

TAZ	2005	2015	2030	Buildout
2503	0	0	0	0
2504	0	24	57	57
2505	0	148	391	391
2506	2	506	1420	1420
2507	761	761	761	761
2508	0	9	23	23
2509	335	335	335	335
2510	2	2	2	2
2511	359	359	359	359
2512	730	730	730	730
2513	526	526	526	526
2514	569	569	569	569
2515	393	400	413	413
2516	768	780	803	803
2517	601	609	623	623
2518	85	104	139	139
2519	24	56	114	114
2520	546	546	546	546
2521	329	329	329	329
2522	530	530	530	530
2523	814	820	830	830
2524	10	18	32	32
2525	624	664	735	735
2526	405	421	451	451
2527	0	62	182	182
2528	357	361	369	369
2529	559	564	571	571
2530	0	7	21	21
2531	0	133	359	359
2532	7	7	7	7
2533	0	0	0	0
2534	54	72	106	106
2535	140	169	220	220
2536	838	1052	1440	1440
2537	909	933	975	975
2538	664	712	795	795
2539	53	274	668	668
2540	205	309	503	503
2541	831	865	923	923
2542	412	424	444	444



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Table 2. Household Forecasts (Continued)

TAZ	2005	2015	2030	Buildout
2543	880	906	949	949
2544	638	664	710	710
2545	924	1033	1237	1237
2546	411	411	411	411
2547	602	635	696	696
2548	1	375	1024	1024
2549	0	136	380	380
2550	2	544	1500	1500
2551	0	51	142	142
2552	4	632	1630	1630
2553	1	1	1	1
2554	0	0	0	0
2555	3	6	9	9
2556	8	9	12	12
2557	0	0	0	0
2558	7	192	504	504
2559	0	161	448	448
2560	0	185	525	525
2561	0	184	518	518
2562	0	0	0	0
2563	0	14	39	39
2564	0	4	9	9
2565	0	13	38	38
2566	0	0	0	0
2567	0	5	15	15
2568	0	2	6	6
2569	0	0	0	0
2570	0	0	0	0
2571	0	6	17	17
2572	0	5	13	13
2573	0	6	15	15
2574	0	0	0	0
2575	0	46	130	130
TOTAL	17,521	22,389	30,992	30,992

LEGEND

- XXXX = Transportation Analysis Zone (TAZ) ID
- = TAZ Boundaries
- = Broomfield Boundary

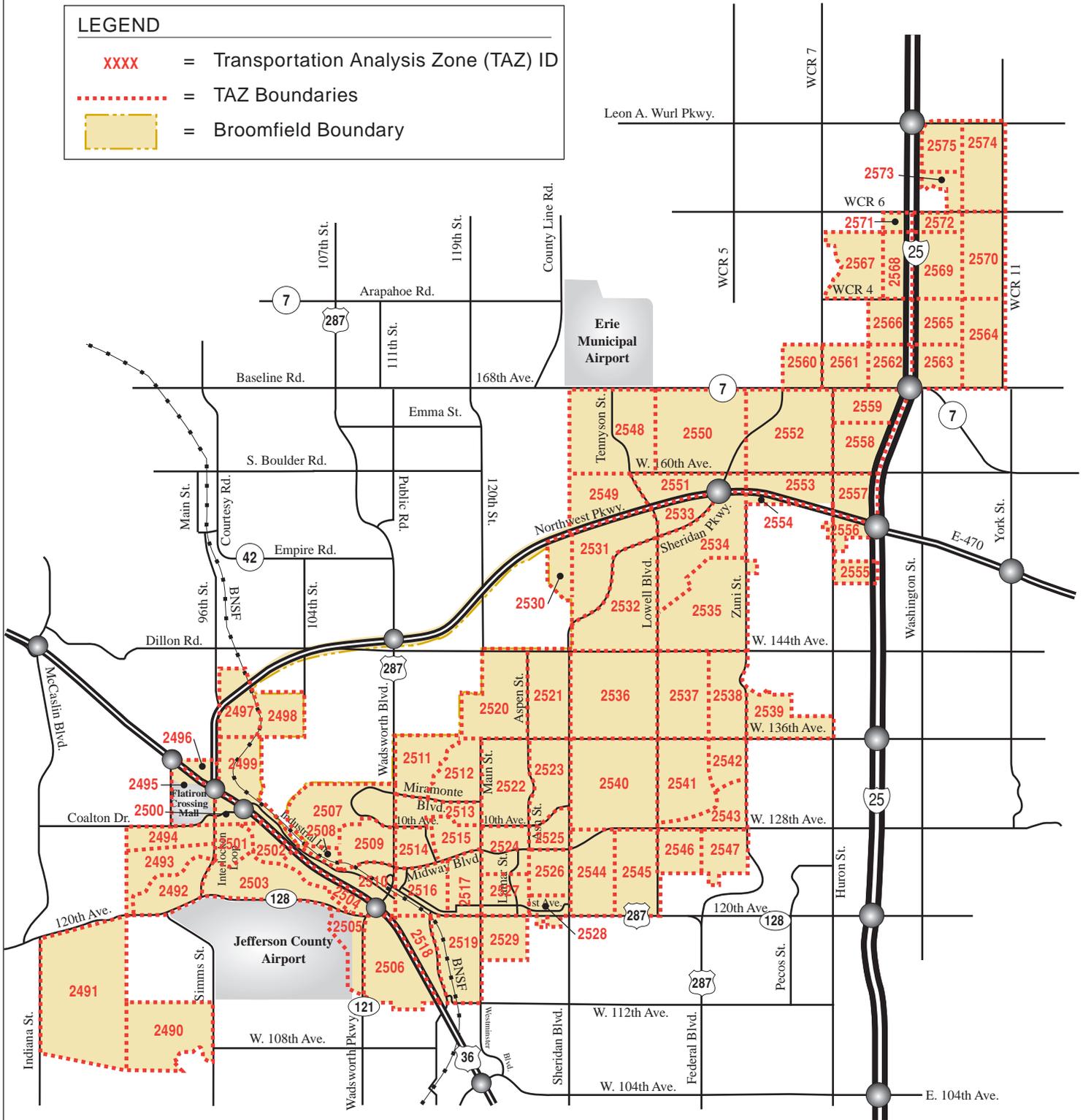


Figure 7

Transportation Analysis Zones





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DRCOG's 2030 employment projections may underestimate the potential employment that is anticipated in the City and County of Broomfield by 2030. The employment forecasts for this plan reflect the best estimates of Broomfield staff of the projected level of employment in 2030. Additionally, the level of employment by TAZ at buildout of the City and County of Broomfield, has been estimated in Table 3. 2005 employment estimates and 2015 employment forecasts are also provided for comparative purposes. The 2030 employment forecasts represent an approximate tripling of the existing (2005) employment levels. This level of growth represents a 5% per year increase in employment. The buildout employment forecasts represent an additional more than doubling of the 2030 employment forecasts. At buildout, Broomfield is anticipated to have approximately 7.5 times the number of employees that it currently has.

Table 3. Employment Forecasts

TAZ	2005	2015	2030	Buildout
2490	0	158	205	1011
2491	58	1195	1577	2000
2492	519	879	1053	1762
2493	165	273	357	950
2494	96	912	1155	1706
2495	215	3323	4273	4273
2496	0	0	0	0
2497	0	359	758	1435
2498	0	0	1	1
2499	20	988	2184	2713
2500	661	1444	2045	2447
2501	155	1046	1290	2198
2502	676	759	962	1089
2503	4036	7403	7750	13294
2504	0	1207	1071	6600
2505	320	902	1012	1012
2506	34	4091	4906	6000
2507	634	527	756	756
2508	881	780	987	1087
2509	2029	1955	2468	2816
2510	2355	2484	2839	3408
2511	9	13	50	59
2512	120	126	230	278
2513	179	157	261	283
2514	404	366	526	569
2515	103	92	162	182
2516	562	503	726	775
2517	440	375	559	593
2518	437	524	640	1044
2519	1029	1210	1476	2010



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Table 3. Employment Forecasts (Continued)

TAZ	2005	2015	2030	Buildout
2520	42	50	117	133
2521	91	88	150	176
2522	86	73	149	157
2523	142	125	247	269
2524	0	1	4	4
2525	45	45	132	145
2526	99	96	169	219
2527	476	411	548	569
2528	403	384	541	629
2529	76	86	167	261
2530	0	4	6	30
2531	0	32	77	201
2532	0	30	34	112
2533	0	5	7	7
2534	26	94	128	128
2535	46	100	149	154
2536	63	90	259	259
2537	0	0	98	98
2538	88	73	177	177
2539	5	515	699	699
2540	21	64	126	145
2541	85	85	203	231
2542	156	132	218	224
2543	99	90	214	230
2544	96	291	419	650
2545	189	196	376	401
2546	61	90	152	236
2547	21	31	110	125
2548	0	28	138	374
2549	0	118	189	189
2550	0	95	262	331
2551	3	68	92	183
2552	0	1268	1445	4698
2553	0	8	10	50
2554	0	2	2	13
2555	0	314	409	564
2556	0	717	928	1221
2557	14	167	184	1022
2558	4	1196	1264	3389
2559	0	861	1066	2586



Table 3. Employment Forecasts (Continued)

TAZ	2005	2015	2030	Buildout
2560	0	379	545	3298
2561	15	405	573	3350
2562	4	2052	2569	3125
2563	16	906	1138	3488
2564	51	328	425	5755
2565	0	292	382	3722
2566	0	283	366	3200
2567	0	19	26	3722
2568	0	279	361	2240
2569	0	287	371	4863
2570	14	170	218	6500
2571	0	139	183	1250
2572	0	278	360	1555
2573	0	282	367	1385
2574	0	167	217	6300
2575	0	286	383	2650
TOTAL	18,674	48,726	62,428	140,043

Planned Roadway Improvements

Several transportation plans and subarea plans have been completed subsequent to the last comprehensive transportation plan. Recent studies and subarea plans include:

- ▶ I-25 Subarea Plan
- ▶ Wadsworth Interchange Plan
- ▶ RTD FasTracks Plan
- ▶ U.S. 36 Corridor Major Investment Study and Environmental Impact Statement
- ▶ North Metro Corridor Major Investment Study
- ▶ 120th Avenue Connection Environmental Assessment
- ▶ Arista Development Plan
- ▶ Anthem Development Plan

Proposed roadway improvements (new or expanded roads) that have been identified through these plans have been compiled and are shown on Figure 8. These improvements represent the Base Case for evaluating future needs and are anticipated for completion by 2030. As depicted on Figure 8, there are many new roadway facilities (particularly in the northeastern portion of Broomfield) and several widening projects that are planned to accommodate existing or future congestion. Some streets, such as W. 160th Avenue east of Lowell Boulevard may need additional lanes depending on the rate of development and extension of the roadway east of 120th Street by the City of Lafayette.

LEGEND

-  = Number of Through Lanes
-  = Existing Interchange
-  = Future Interchange
-  = New Roadway
-  = Widen by 2 New Lanes
-  = Widen by 4 New Lanes
-  = Broomfield Boundary

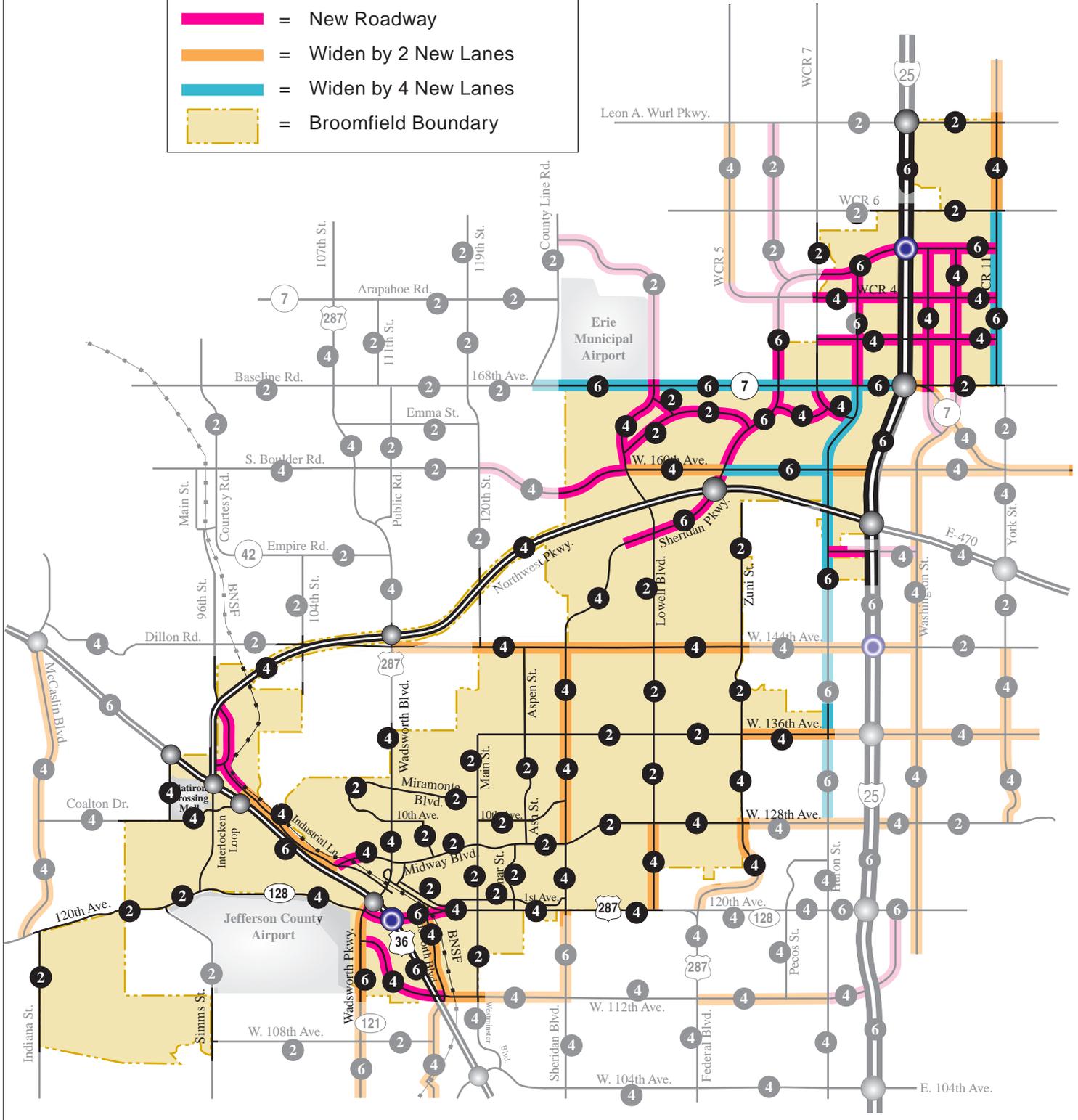


Figure 8

2030 Base Case Roadway Improvements





Figure 9 illustrates the 2030 Base Case roadway network, which is a combination of these planned improvements and the existing roadway network. This Base Case network has been utilized as the baseline for testing additional roadway improvements needs in Broomfield.

2030 Traffic Forecasts

The future travel demand patterns in the Broomfield area and the Denver Metropolitan region as a whole are primarily a function of the population and employment opportunities in the area. The 2030 household and employment data outlined in the preceding section were used as input in the DRCOG travel demand model. The model provides daily traffic forecasts on the roadway network that can then be used to identify deficiencies in the roadway network and to evaluate the effectiveness of alternative improvements.

The initial model run involved assigning 2030 volumes to the Base Case roadway network. This assignment was used to identify specific roadways on which significant congestion could be expected in the future if no improvements were made beyond those identified in the Base Case. The forecasted 2030 daily traffic volumes on the Base Case roadway network are presented on Figure 10.

As described previously, the volume to capacity (v/c) ratio is a planning level measure of the congestion experienced by roadway users. The v/c ratio on each link of the travel demand model in the Broomfield study area was calculated using the forecasted 2030 traffic volumes and the Base Case maximum capacities, as defined in Table 1. The resulting v/c ratios are shown on Figure 11. The red segments represent roadways which carry traffic volumes in excess of the planning-level roadway capacity ($v/c \geq 1.3$), the orange segments represent roadways operating at slightly over capacity conditions (v/c between 1.0 and 1.3), the yellow segments represent roadways operating at near capacity conditions (v/c between 0.8 and 1.0), and the green segments represent roadways which operate below capacity ($v/c < 0.8$). The projected v/c ratio is provided on those roadway segments that are projected to be near or above capacity. As shown, several roadway facilities in Broomfield are projected to carry daily traffic volumes in excess of their capacity.

Select Link Analysis

A select link analysis is an analytical tool that can be completed using the travel demand model to understand the type of traffic utilizing a particular roadway segment. Select link analyses have been conducted on 14 roadway segments in the City and County of Broomfield. The purpose of this exercise is to understand how much of the daily traffic on a particular link has either an origin or a destination within the City and County of Broomfield and how much of the traffic is more regional in nature, with neither an origin nor a destination within Broomfield.

LEGEND

-  = Number of Through Lanes
-  = Existing Interchange
-  = Future Interchange
-  = Freeway / Tollway
-  = Major Arterial
-  = Minor Arterial
-  = Connector
-  = Broomfield Boundary

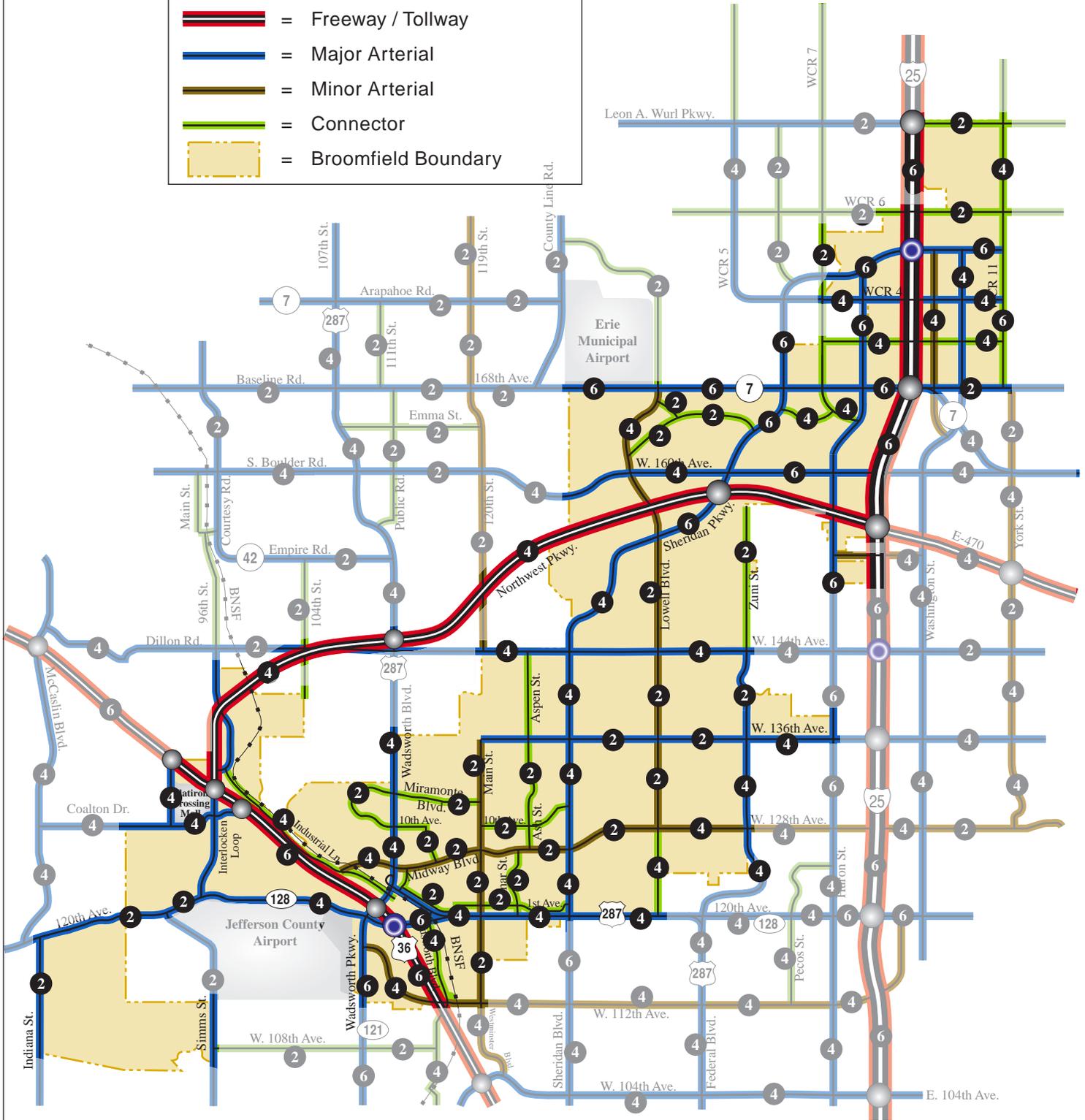


Figure 9
2030 Base Case Roadway Laneage
and Functional Classification





2005 Broomfield Transportation Plan

Figure 12 depicts the locations of the select link analyses, and the resulting composition of traffic on each link is provided in Table 4. Internal-Internal trips represent the percentage of the daily traffic on each link which has both an origin *and* a destination within the City and County of Broomfield. Internal-External trips are those trips which have either an origin *or* a destination within the City and County of Broomfield. The last column, the External-External trips, represents the percentage of daily traffic which has neither an origin *nor* a destination within the City and County of Broomfield.

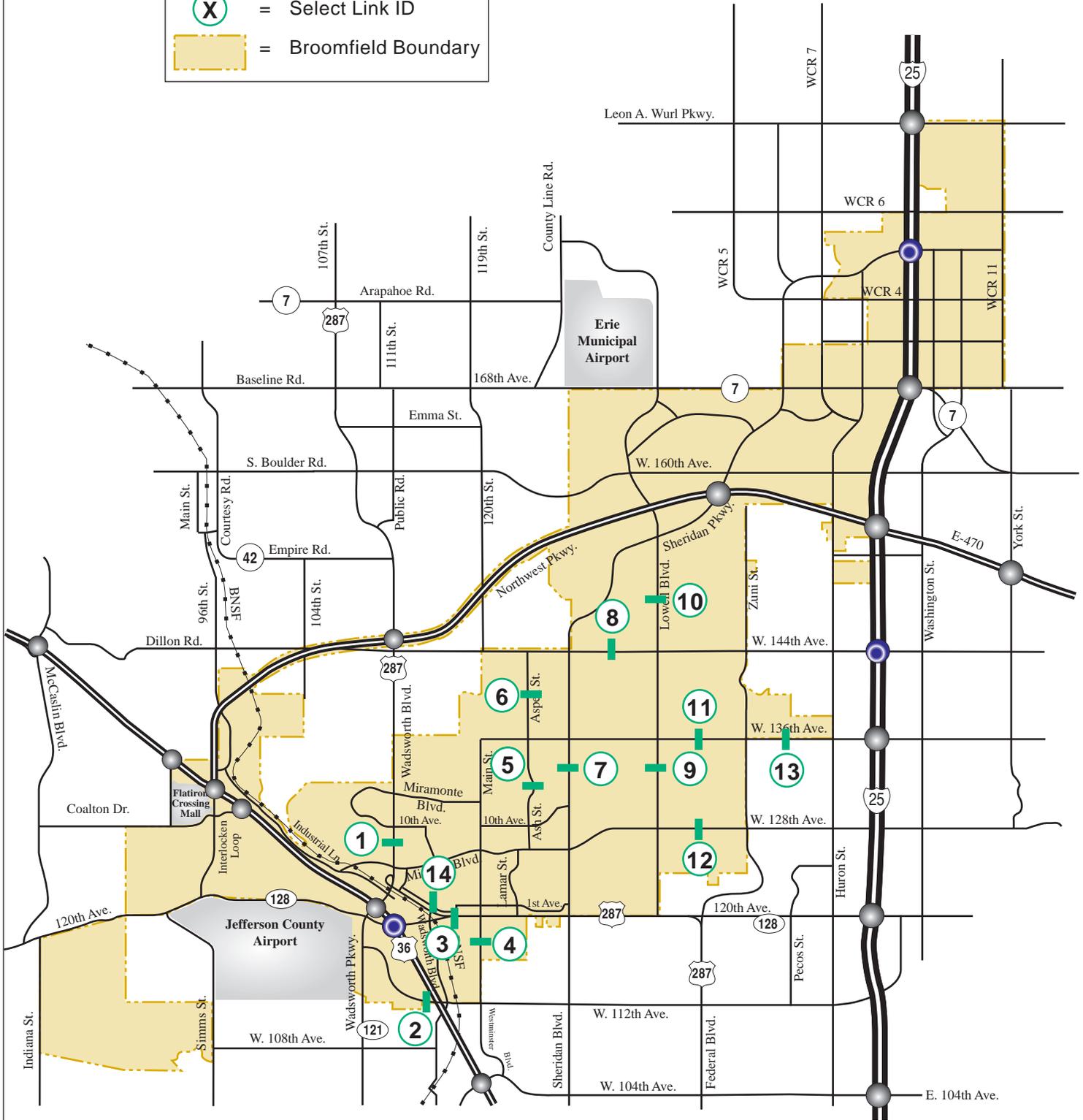
Because of the oblong shape of the City and County boundaries, the Internal-Internal trips generally comprise a relatively small percentage of the total traffic on these roadways. As might be expected, the roadway facilities that are more regional in nature (such as Wadsworth Boulevard, Sheridan Boulevard, and 144th Avenue) carry the highest percentage of External-External trips. A weighted average of these 14 roadway segments indicates that approximately 40% of the traffic utilizing these facilities is regional traffic passing through Broomfield.

Table 4. Select Link Analysis Results

#	Roadway	Location	2030 Daily Forecast	Internal – Internal %	Internal – External %	External – External %
1	Wadsworth Boulevard	North of Midway Blvd.	58,800	10%	30%	60%
2	Uptown Avenue	West of U.S. 36	22,800	21%	72%	7%
3	W. 120 th Avenue	West of Main Street	52,600	21%	55%	24%
4	Main Street	South of W. 120 th Avenue	15,200	4%	71%	25%
5	Ash Street	South of W. 136 th Avenue	3,500	21%	47%	32%
6	Aspen Street	South of W. 144 th Avenue	2,500	14%	59%	27%
7	Sheridan Boulevard	South of W. 136 th Avenue	33,100	9%	36%	55%
8	W. 144 th Avenue	West of Lowell Boulevard	27,400	6%	34%	60%
9	Lowell Boulevard	South of W. 136 th Avenue	9,700	15%	47%	38%
10	Lowell Boulevard	North of W. 144 th Avenue	6,100	13%	42%	45%
11	W. 136 th Avenue	West of Zuni Street	13,900	18%	73%	9%
12	W. 128 th Avenue	West of Zuni Street	12,500	16%	52%	32%
13	W. 136 th Avenue	East of Zuni Street	34,000	2%	54%	44%
14	W. 1 st Avenue	West of Emerald Street	3,200	31%	55%	14%

LEGEND

- X = Select Link ID
- = Broomfield Boundary



North

Figure 12
Select Link Analysis Locations



Tested Roadway Improvements

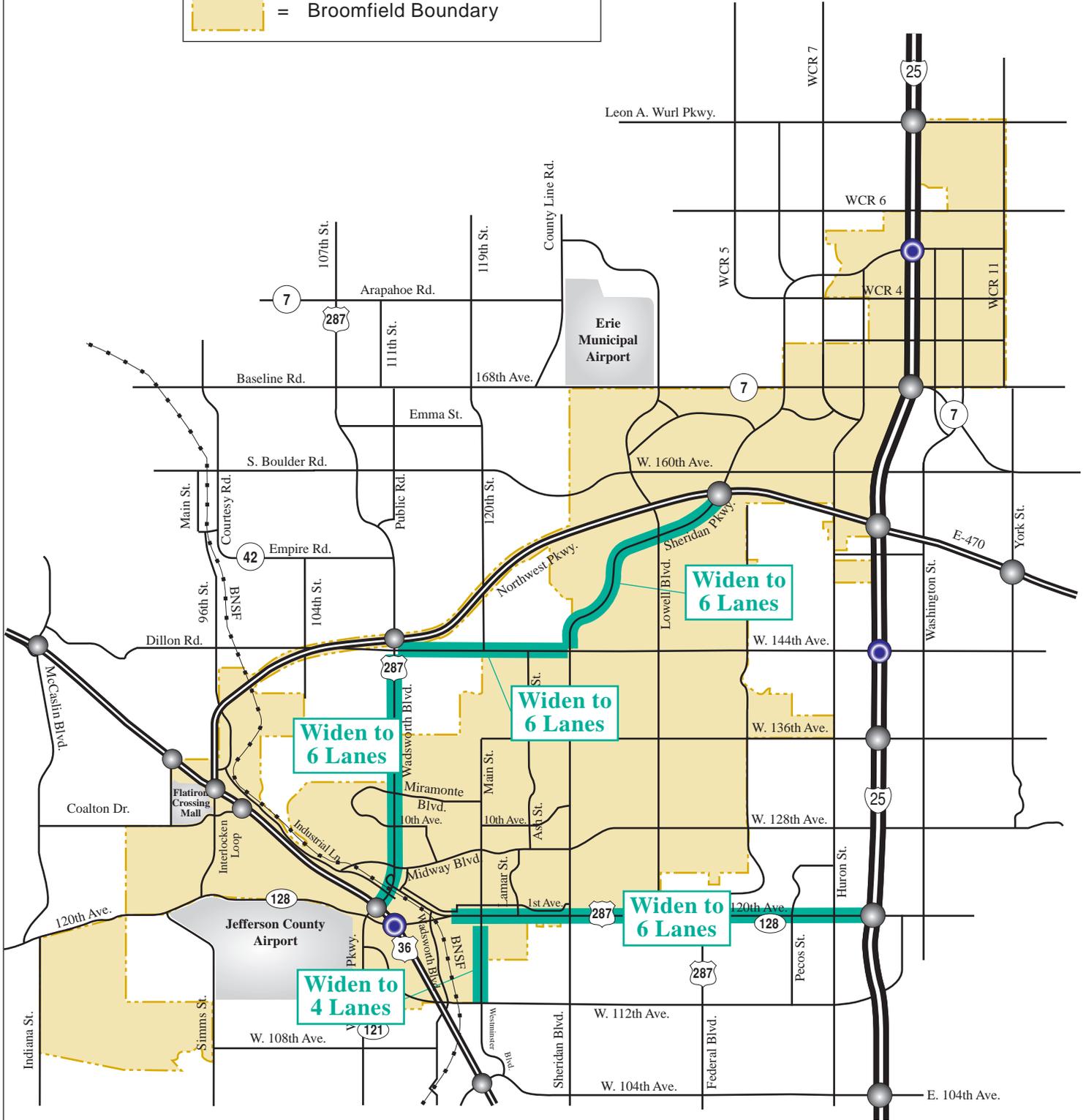
In order to address the projected deficiencies in the 2030 Base Case roadway network, additional roadway improvements were tested using the travel demand model. Figure 13 shows the tested roadway improvements, which include: widening W. 120th Avenue to six lanes between I-25 and the future 120th Avenue connection, widening Wadsworth Boulevard to six lanes between U.S. 36 and the Northwest Parkway, widening W. 144th Avenue to six lanes between the Northwest Parkway and Sheridan Parkway, widening Sheridan Parkway to six lanes between W. 144th Avenue and the Northwest Parkway, and widening the section of Main Street from W. 112th Avenue to W. 120th Avenue to four lanes. The resulting 2030 traffic forecasts are shown on Figure 14.

The volume to capacity ratios were re-calculated using the 2030 traffic forecasts shown on Figure 14 and the increased capacities associated with the tested improvements. The resulting v/c ratios are shown on Figure 15. By comparing Figures 11 and 15, the benefits of the tested improvements can be understood. Although the widened sections on W. 120th Avenue and Wadsworth Boulevard would remain over capacity, the volume to capacity ratios would be reduced appreciably. The widened sections of W. 144th Avenue and Sheridan Parkway are projected to operate at near capacity conditions, while the widening section of Main Street is projected to operate at below capacity conditions. In addition to the direct benefit to the widened roadway segments, these tested improvements would also provide benefits to the roadway network as a whole. By widening regional facilities, the more local routes would be relieved, and the congestion on roadways such as Midway Boulevard and Main Street would be reduced.

Due to the benefits of the tested roadway improvements, these five widening improvements are recommended and are included in the Recommended Roadway Plan.

LEGEND

- = Tested Roadway Improvements
- = Broomfield Boundary



North

Figure 13

Tested Roadway Improvements

LEGEND

- x.xx = Volume to Capacity (v/c) Ratio
- = $v/c \geq 1.3$ (Over Capacity)
- = $1.0 \leq v/c < 1.3$ (Slightly Over Capacity)
- = $0.8 \leq v/c < 1.0$ (Near Capacity)
- = $v/c < 0.8$ (Below Capacity)
- = Broomfield Boundary

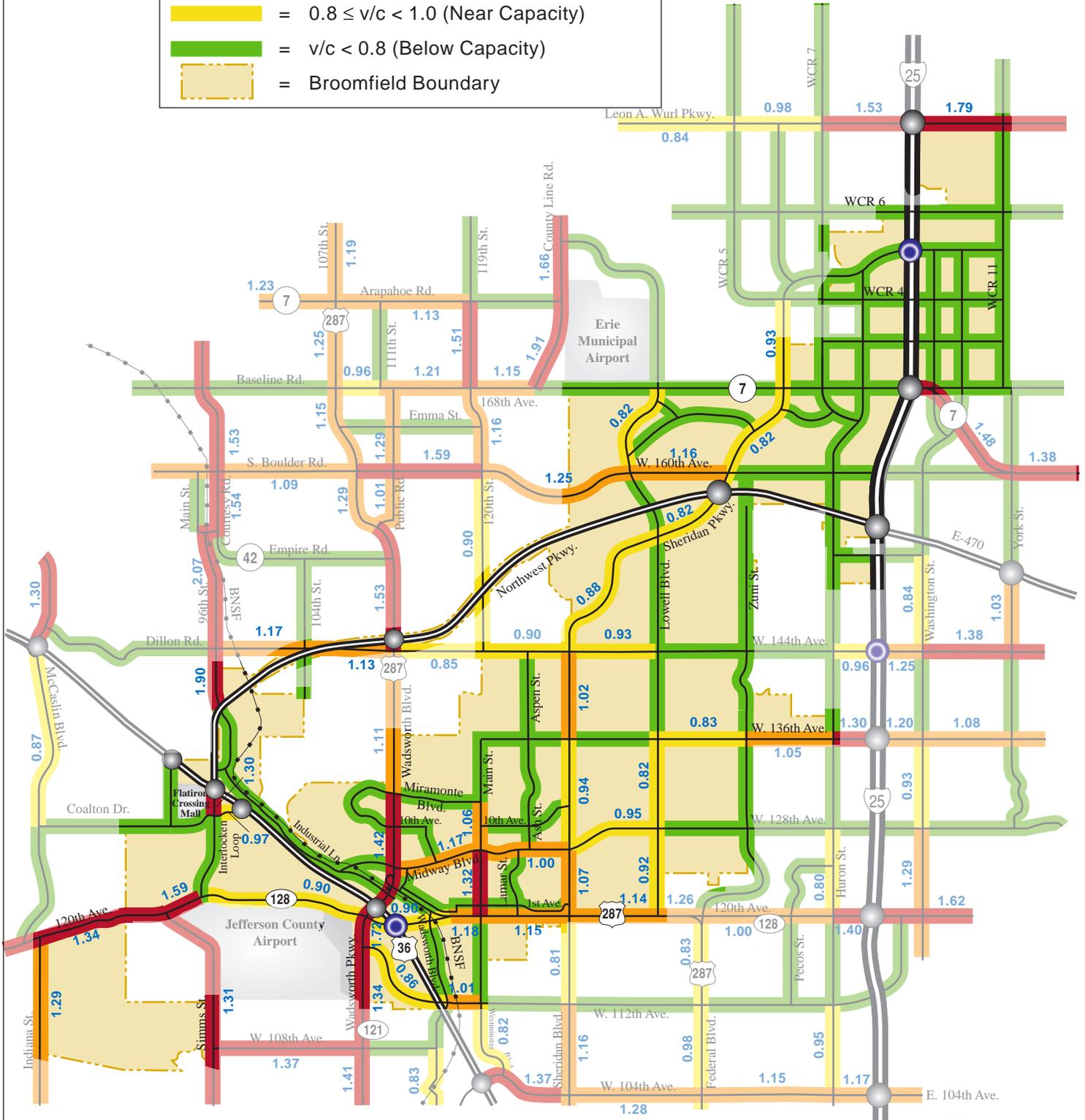


Figure 15
2030 Volume to Capacity (v/c) Ratios
with Tested Improvements





RECOMMENDED TRANSPORTATION PLAN

Roadway Plan

The Roadway Plan has been developed based upon these technical analyses and several transportation studies previously conducted in Broomfield and the surrounding region. The Recommended Roadway Plan is shown on Figure 16. The improvements identified for the Base Case roadway network, along with the tested improvements, form the basis for the Roadway Plan.

Transit Plan

An assessment of existing transit services serving Broomfield shows good regional service on U.S. 36 and I-25, but significant improvements are needed to provide bus service throughout Broomfield. Currently there is no bus service north of W. 128th Avenue, and only a small portion of northwestern Broomfield is served by call-n-Ride.

When the Broomfield park-n-Ride is relocated along U.S. 36, it will be necessary to reconfigure the routes of many buses to provide efficient transfers to and from regional buses running along the highway.

Figure 17, Recommended Transit Plan, proposes Short Term (2006 – 2011) and Long Term (2011 – 2015) bus service improvements. This figure proposes Short Term north/south and east west transit service to support existing travel patterns and development. Additional call-n-Ride areas are proposed for implementation to answer current needs expressed by both special needs and able-bodied residents.

Longer Term transit services are proposed to anticipate and integrate with development that is under construction or planned. Along with rail service proposed for the U.S. 36 and North I-25 corridors, “feeder bus service” will take travelers to and from rail stations. Call-n-Rides will provide an overlay to conventional fixed route bus service throughout most of Broomfield, together forming a system to provide an alternative to driving for Broomfield residents and workers.

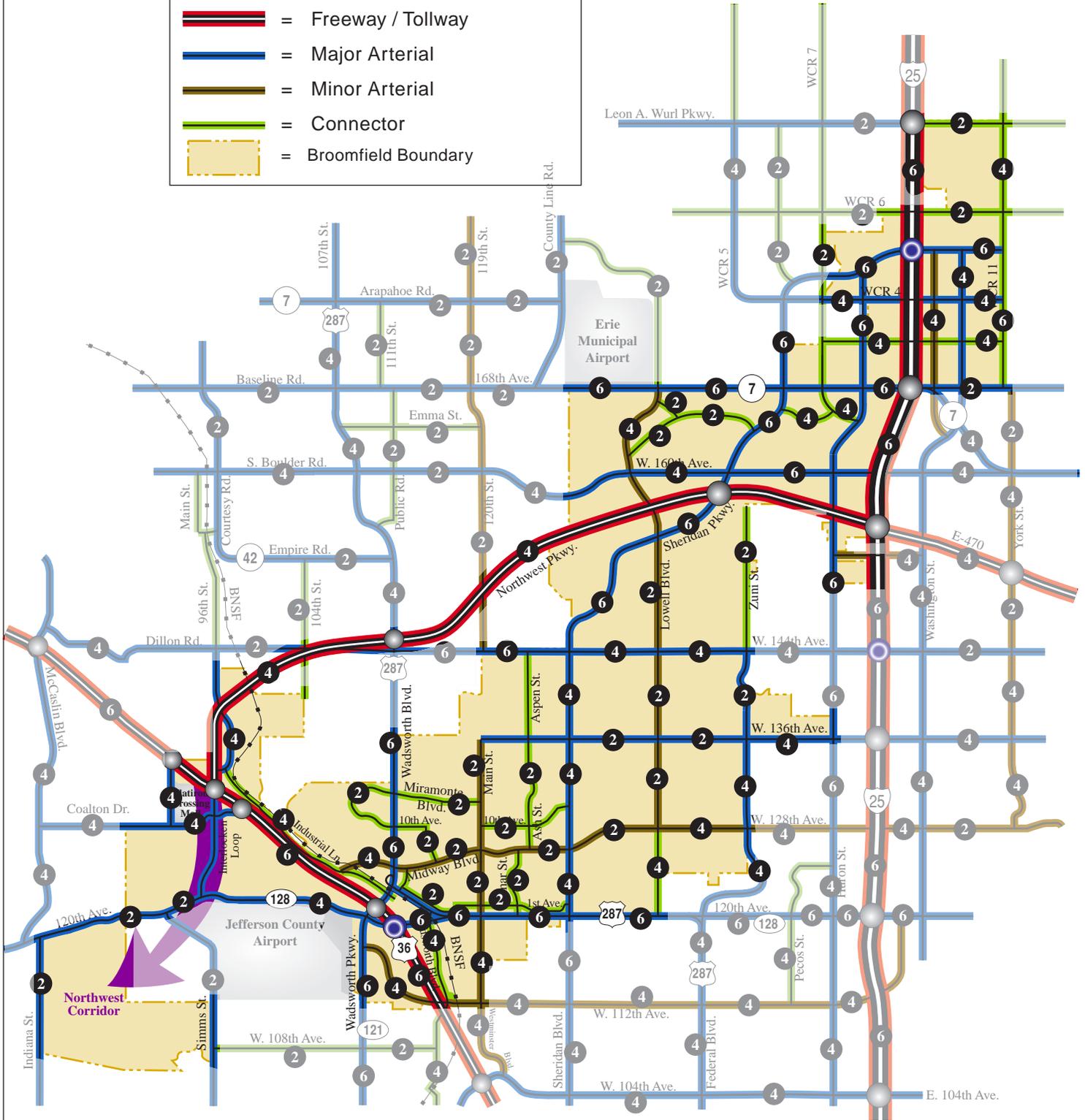
Bicycle and Pedestrian Plan

An interconnected transportation system which has multiple pathways through Broomfield allows residents, employees, and visitors to choose the most direct route and mode to their destination. Both new and reconstructed roads include bike lanes wherever feasible. The Bike and Pedestrian Plan supports travel by multiple modes, for example, biking to a bus trip or walking to a park-n-Ride.

The proposed future Trail System is show on Figure 18. This plan was developed as part of the Open Space, Parks, Recreational and Trails Master Plan and includes recommendations for completing neighborhood, community and regional missing links.

LEGEND

-  = Number of Through Lanes
-  = Existing Interchange
-  = Future Interchange
-  = Freeway / Tollway
-  = Major Arterial
-  = Minor Arterial
-  = Connector
-  = Broomfield Boundary



North

Figure 16
2030 Recommended Roadway Plan

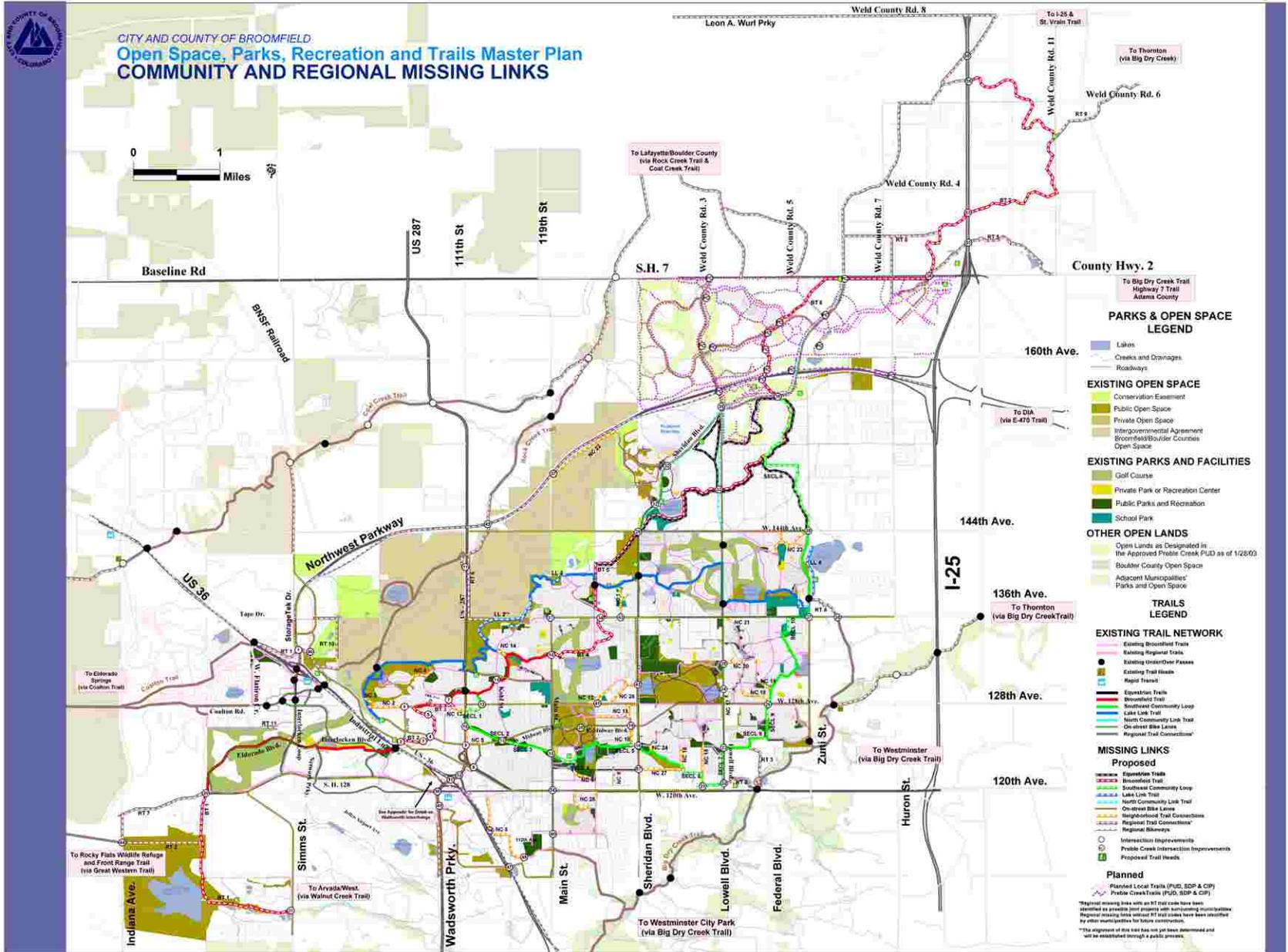


Figure 18
Proposed Future Trail System



North



BUILDOUT ASSESSMENT

Although this Transportation Plan focuses on the forecasted 2030 land use and associated traffic volume forecasts, a supplemental analysis has been completed to address buildout of the City and County of Broomfield. The residential portion of Broomfield is expected to be substantially built out by 2030; however, a significant increase in employment is anticipated beyond the 2030 employment forecasts. As shown in Table 3, an additional nearly 78,000 employees are anticipated at buildout beyond the 2030 employment projections. The majority of the employment increase between 2030 and buildout is in the northeastern portion of Broomfield.

The travel demand model was run using the Buildout land use forecasts and the Recommended Roadway Plan (Figure 16). For areas outside of the City and County of Broomfield boundaries, the DRCOG 2030 land use has been used. The resulting traffic volume forecasts are shown on Figure 19. The daily traffic volumes in the northeastern portion of Broomfield increase significantly over the 2030 forecasts.

The volume to capacity ratios were calculated using the forecasted Buildout traffic volumes. The results are shown on Figure 20. With the increased employment in Broomfield, many roadways are projected to operate at above capacity conditions if improvements beyond those identified in the Recommended Roadway Plan are not implemented.

LEGEND

- XX.X = 2030 Daily Forecasts (in thousands)
- = Existing Interchange
- (with blue outline) = Future Interchange
- ▭ (dashed yellow) = Broomfield Boundary

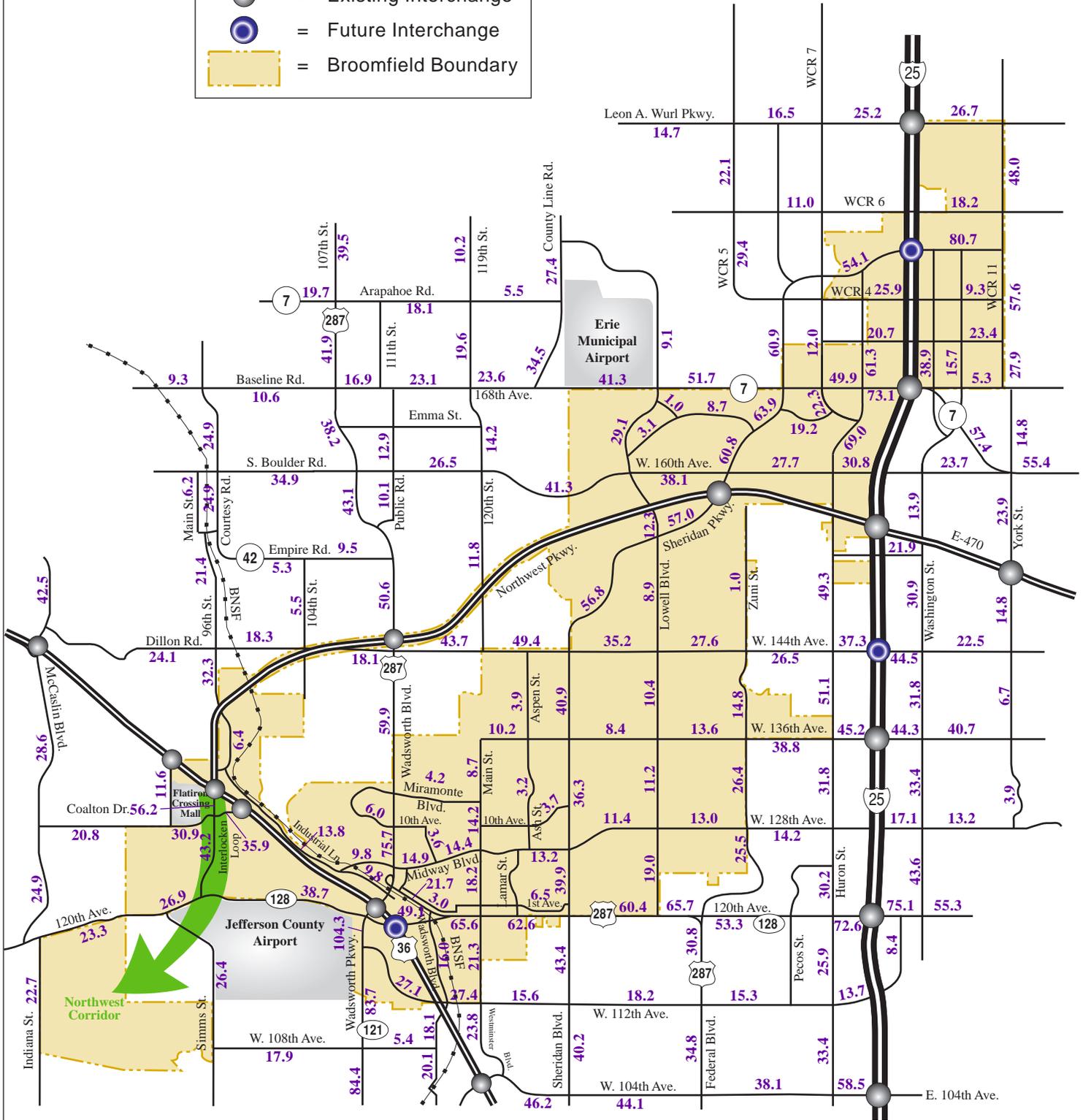


Figure 19
Buildout Daily Traffic Volume Forecasts
on Recommended Roadway Plan



LEGEND

- x.xx = Volume to Capacity (v/c) Ratio
- = $v/c \geq 1.3$ (Over Capacity)
- = $1.0 \leq v/c < 1.3$ (Slightly Over Capacity)
- = $0.8 \leq v/c < 1.0$ (Near Capacity)
- = $v/c < 0.8$ (Below Capacity)
- = Broomfield Boundary

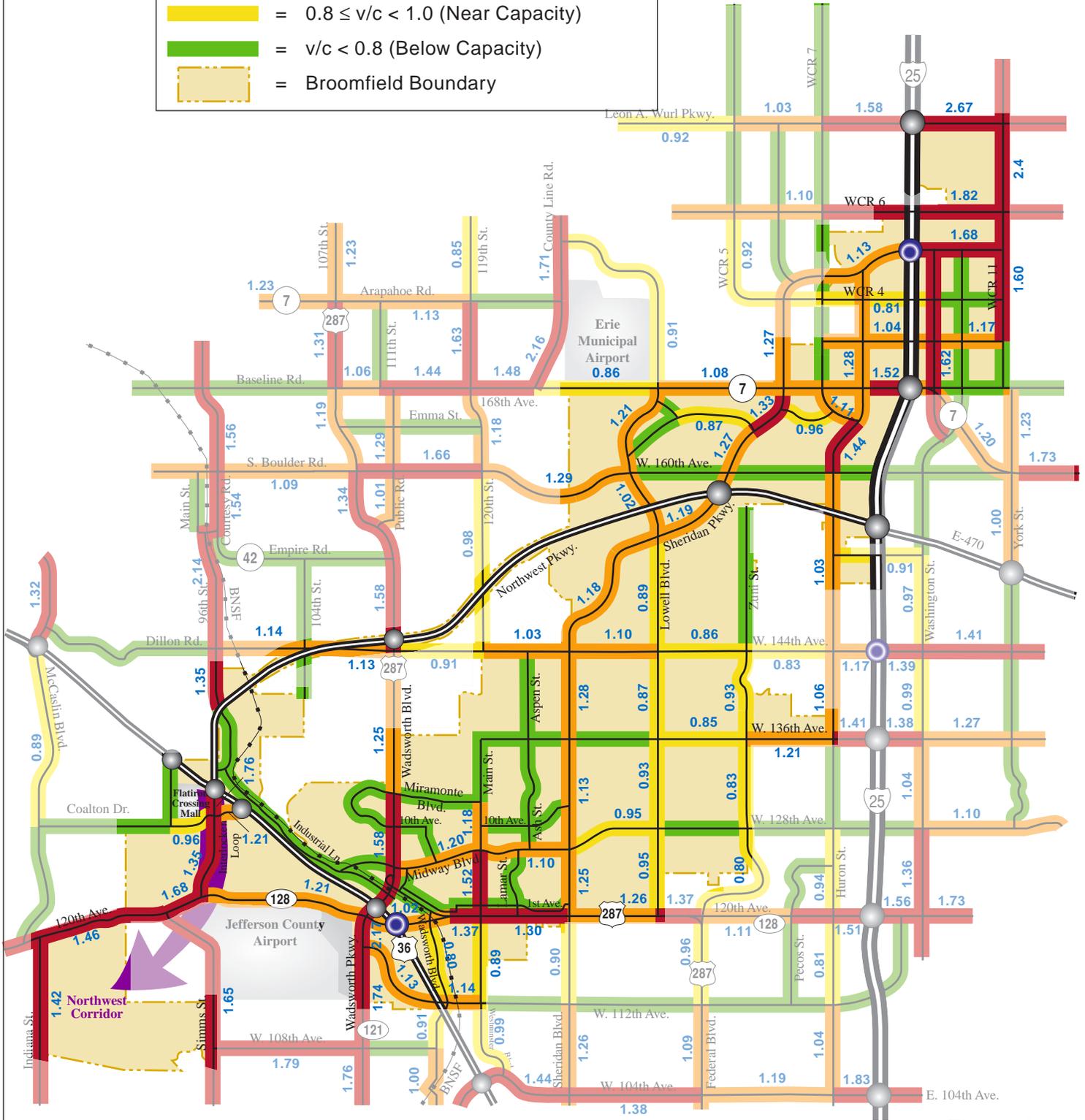


Figure 20
Buildout Daily Volume to Capacity (v/c) Ratios
on Recommended Roadway Plan





SUMMARY

The intent of the transportation element of the 2005 Comprehensive Plan is to ensure that the City and County of Broomfield has a plan in place for development of an effective transportation system that is upgraded, as necessary, in anticipation of growth. The primary purpose of this document is to provide technical information that can be used as a basis for formulating transportation related policies.

Broomfield is expected to experience significant growth over the next 25 years and beyond. In 2030, it is forecasted that Broomfield will have approximately 31,000 households and 62,400 employees, representing 2.3% and 5.0% annual growth rates, respectively, over the current household and employment levels. Although the households in Broomfield are expected to be fully built out by 2030, an additional 77,600 jobs are forecasted for buildout beyond the 2030 employment forecasts. This Transportation Plan provides technical recommendations for multi-modal improvements that respond to the projections for growth.

Roadway Plan

Broomfield's existing transportation system consists of a hierarchy of roadways ranging from local residential streets, connectors and arterials to freeways and tollways. Several roadway segments in Broomfield currently operate at above capacity conditions, indicating a need for roadway improvements, particularly as Broomfield and the surrounding areas continue to grow.

Several transportation plans and subarea plans that impact the Broomfield transportation network have recently been completed. The proposed roadway improvements that have been identified through such plans have been compiled to serve as the Base Case for evaluating future needs in Broomfield. The Base Case improvements include several new roadway connections in the vicinity of U.S. 36/Wadsworth Boulevard/120th Avenue and the construction of a grid system in the northeastern portion of the City and County to serve future development. Additionally, the Base Case improvements include three new interchanges (two on I-25 and one on the Northwest Parkway) and widening of many roadway facilities in Broomfield including sections of Wadsworth Parkway, Sheridan Boulevard, Huron Street, W. 136th Avenue, W. 144th Avenue, W. 160th Avenue and S.H. 7. In addition to the Base Case improvements, other roadway improvements have been tested through the travel demand modeling process to address the future deficiencies in the roadway network. The Recommended Roadway Plan (Figure 16) includes five roadway widening projects (totaling approximately 13.5 miles) in addition to the Base Case network improvements.

Transit Plan

Transit service in Broomfield is comprised of Regional Transit District (RTD) fixed route and call-n-Ride services, along with both public and private transit services for the elderly and disabled populations.

The Recommended Transit Plan includes seven proposed additional fixed bus routes, two new park-n-Ride locations and new call-n-Ride areas that would approximately double the current call-n-Ride coverage in the study area. With planned rail service for the U.S. 36 and I-25



2005 Broomfield Transportation Plan

corridors, two future commuter rail stations are planned along with feeder bus service to take passengers to and from rail stations. The Recommended Transit Plan forms a system to provide an alternative to driving for Broomfield residents and employees.

Bicycle and Pedestrian Plan

Broomfield's bicycle and pedestrian system currently includes multi-use paths and sidewalks within many neighborhoods and activity areas as well as soft surface trails that are primarily used for recreation. On-street bike lanes and/or detached multi-use paths are provided in numerous areas. However, current facilities are discontinuous, and do not serve all parts of Broomfield.

The proposed future Trail System was developed as part of the Open Space, Parks, Recreational and Trails Master Plan and includes recommendations for completing neighborhood, community and regional missing links in the bicycle and pedestrian trail system. New and reconstructed roads include bike lanes wherever feasible.

The 2005 Broomfield Transportation Plan has been developed based on Broomfield's changing needs and ongoing development plans. With forecasted employment and residential growth, many roadways are projected to operate at above capacity conditions if improvements are not implemented, resulting in congestion for both passenger car and bus traffic. This technical information can help decision makers envision a multi-modal transportation system for the future and provide a basis for prioritized infrastructure investment.