

NORTHEAST AREA TRANSIT EVALUATION

FINAL REPORT

Prepared for:

Regional Transportation District



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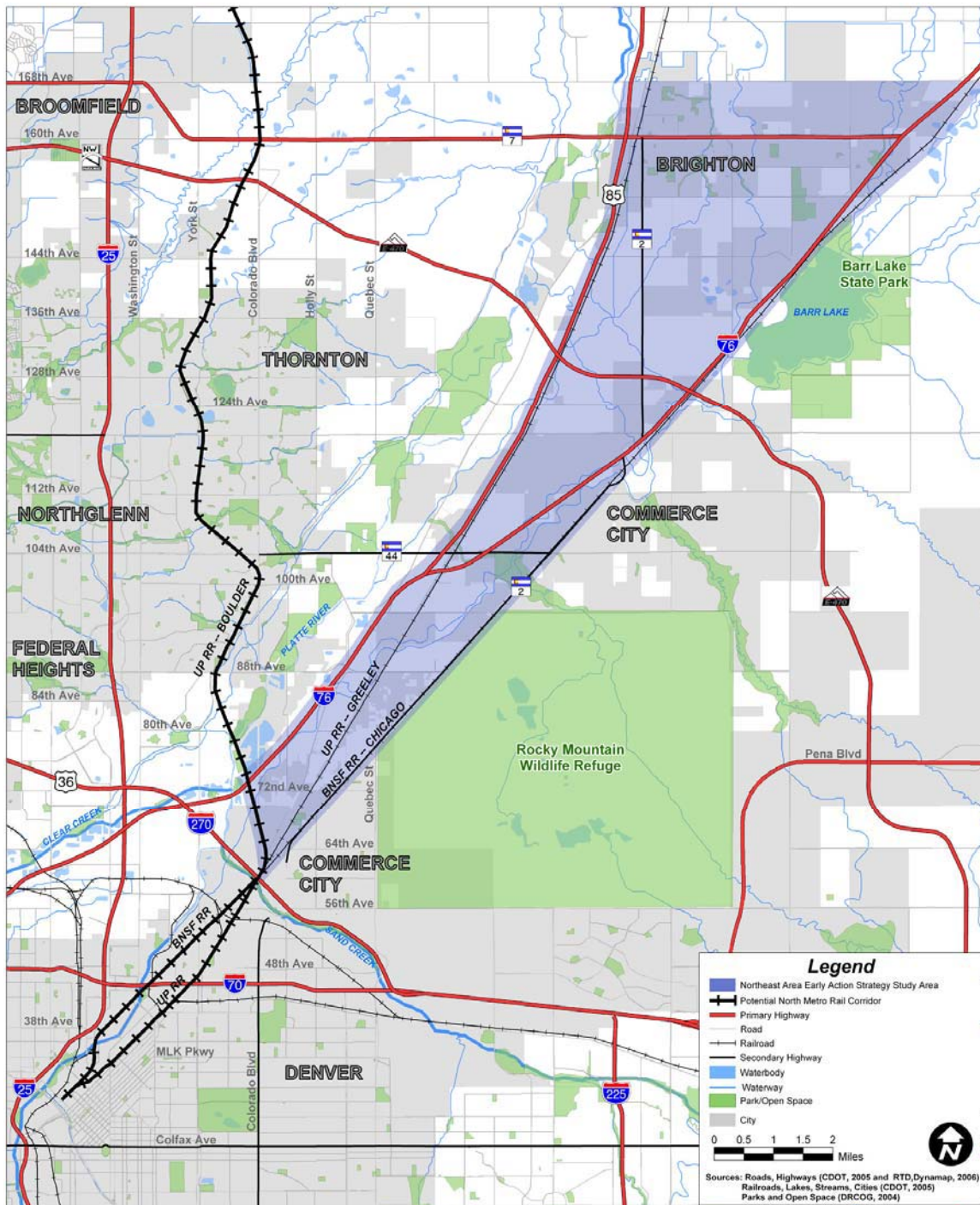
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Figure 1: Northeast Area Transit Evaluation Study Area



Project Objectives

The objectives of the NATE study include:

1. Provide fatal flaw analyses to ascertain alignment option(s) and appropriate technologies.
2. Identify strategies to improve mobility along the selected alignment(s) using funds contained within the FasTracks program.
3. Recommend strategies that maximize the use of these programmed funds.
4. Recommend a list of potential investments to preserve alignment options.

INTRODUCTION

This report presents a summary of the Northeast Area Transit Evaluation (NATE) study and provides an overview of potential implementation strategies that would support fixed-guideway transit opportunities within Denver's northeast metropolitan area. The focus of this area as a corridor to study evolved from the Locally Preferred Alternative (LPA) of the North Metro Corridor Major Investment Study (MIS), which recommended a need to study future potential fixed-guideway transit opportunities between Denver and Brighton. The preservation of fixed-guideway transit opportunities within this corridor is also listed in Denver Regional Council of Government's (DRCOG) Regional Transportation Plan (RTP) as a Tier 2 component of the regional transit system.

The study examines potential options to invest \$7.3 million allocated in the Regional Transportation District's (RTD) FasTracks program toward the preservation of fixed-guideway transit between Denver and Brighton. The information documented in this report represents the culmination of a process that included input from a working committee made up of local government representatives, as well as an assessment of the technical issues associated with a new transit system within the northeast metro area.

The major steps in the study included:

- Review of existing transportation facilities, services and conditions in the study area
- Development and evaluation of three overall alternative concepts for transit service
- Evaluation of potential transit technologies
- Analysis to determine potential investment opportunities and identification of strategies to support implementation of a fixed-guideway transit system

Project Definition

The NATE study examines how to use \$7.3 million approved in the FasTracks Plan to preserve land for a future transit line. As the land and transportation infrastructure in the northeastern part of the metro area continues to develop, space for high-capacity transit will be increasingly hard to come by. This study investigates right-of-way (ROW) preservation opportunities for future high-capacity transit between Denver and Brighton. The study area is generally located between US 85 and I-76, north and east of Commerce City to the Weld County line (see Figure 1, Northeast Area Transit Evaluation Study Area).

Project Goal

The goal of the NATE study is to work with municipalities and jurisdictions within the study area to investigate options to extend future, post-FasTracks, fixed guideway bus and/or rail transit improvements between Denver and Brighton with direct connection to the FasTracks system. However, alternative alignments to connect to the North Metro Corridor are presented and discussed near the end of this report.

LIST OF ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
BNSF	Burlington Northern Santa Fe (Rail line)
BRT	Bus Rapid Transit
CBD	Denver Central Business District
CDOT	Colorado Department of Transportation
DIA	Denver International Airport
DMU	Diesel Multiple Unit
DRCOG	Denver Regional Council of Governments
DUS	Denver Union Station
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMU	Electrified Multiple Unit
FTA	Federal Transit Administration
FY	Fiscal Year
HOV	High Occupancy Vehicle
IGA	Intergovernmental Agreement
LPA	Locally Preferred Alternative
LRT	Light Rail Transit
MIS	Major Investment Study
NATE	Northeast Area Transit Evaluation
NEPA	National Environmental Policy Act
PUC	Public Utilities Commission
ROW	Right of Way
RTD	Regional Transportation District
RTP	Regional Transportation Plan
SH	State Highway
TAZ	Traffic Analysis Zones
TMO	Transportation Management Organization
TOD	Transit Oriented Development
UP	Union Pacific Railroad
WCR	Weld County Road

The study generally followed the attached schedule (see Figure 2). A public open house was not included in this study, rather study recommendations were presented at council meetings and a county commission meeting. In addition, a total of three meetings were held with community groups, advisory boards, and local developers to share findings and recommendations.

Figure 2: NATE Study Schedule

October-06	November-06	December-06	January-07	February-07	March-April-07
Task 1: Project Definition/Define Goals and Objectives					
	Task 2: Data Collection and Policy Analysis				
	Task 3: Alignments Identification & Evaluation/Technology Considerations				
	★ Alternatives Development Work Session				
		Task 4: Recommend Feasible Investment Options			
		★ Brighton City Council Presentation			
			Task 5: Recommend Immediate Action Strategies & Schedule for Improvements Draft Report		★
					Stakeholder Mtgs
				Task 6: Final Documentation	
					★
					City Council/County Commission
★ Oct. 2, 2006	★ Nov. 8, 2006	★ Dec. 6, 2006		★ Feb. 6, 2007	★ March 7, 2007

Adams County

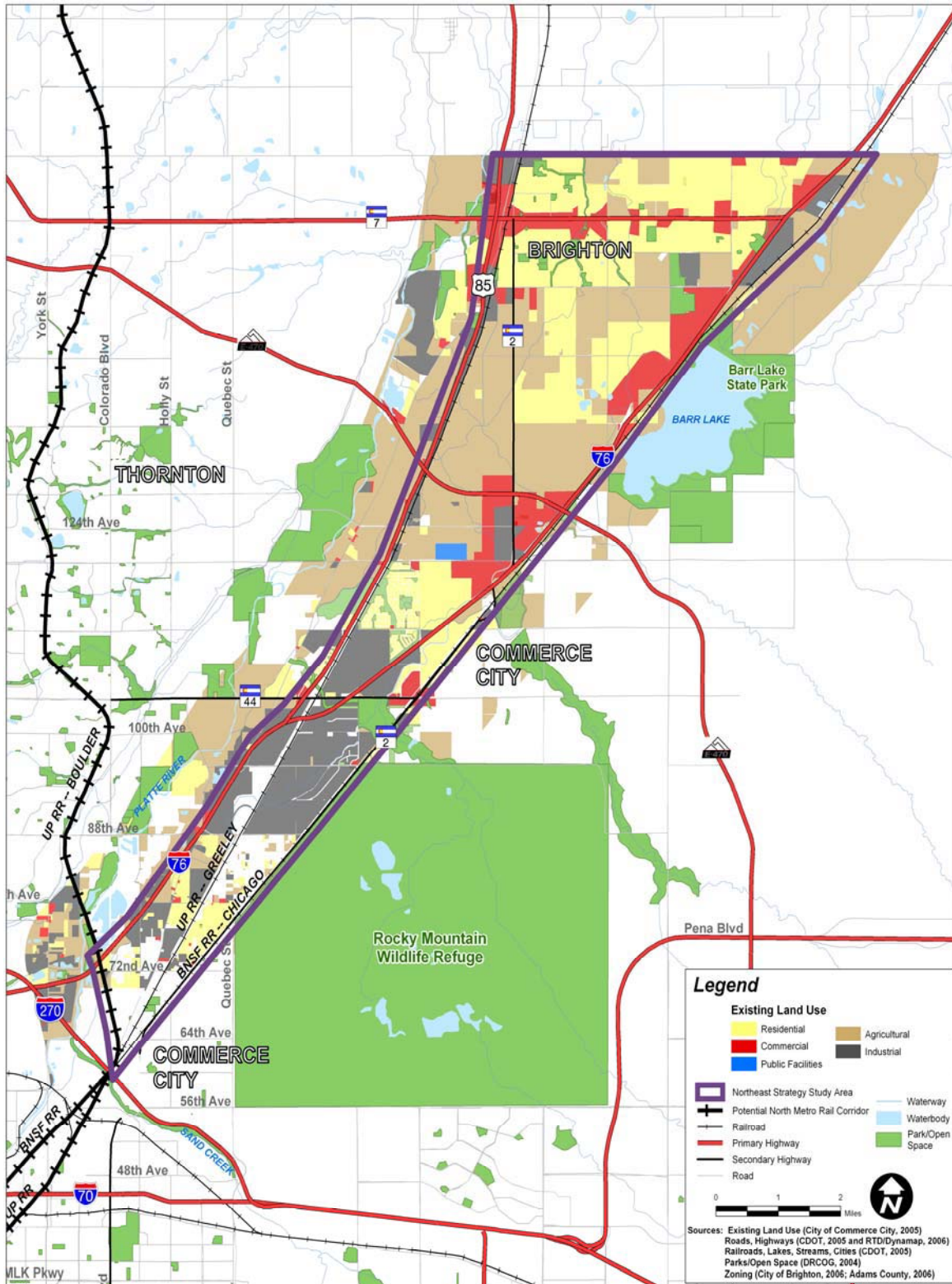
Much of the land within the study area that is under the jurisdiction of Adams County is either large tracts of agricultural or low density residential uses, or in smaller “enclave” parcels located within properties that are under the jurisdiction of the City of Brighton and Commerce City. An Intergovernmental Agreement (IGA) between Commerce City (and possibly with Brighton) and Adams County is required for development in the city limits if water service is needed.

Existing Environmental Conditions

A review of environmental conditions within the study area was conducted to determine baseline environmental resources that may be a factor in planning decisions. As shown in Figure 4, Environmental Resources Map, multiple floodplain areas exist throughout the study area. Large waterbodies in the general area include Barr Lake State Park and the Platte River. Creeks that extend through the study area from the Platte River include First Creek, which crosses the study area at 104th Avenue, Second Creek, which crosses the study area near 136th Avenue, and Third Creek, which crosses the study area at approximately 144th Avenue. The waterway areas widen as they flow further east. A large floodplain area exists east of US 85 and north of E-470 near the Union Pacific (UP) tracks. Another floodplain area exists within the area of 104th Avenue and US 85. Each of these floodplains extends across the study area. In the south portion of the study area, Sand Creek is located just south of I-270. Crossing Sand Creek by the railroads presents a challenge since the BNSF-Chicago line UP-Greeley line and UP-Boulder line converge to cross at a single location.

Large parks and open space areas include Barr Lake State Park and Rocky Mountain Wildlife Refuge. Native plants and sensitive areas may exist near these park areas which may require further evaluation.

Figure 3: Existing Zoning/Land Use Map



redevelopment process. A vacant swath of land exists on both sides of the existing rail tracks through the downtown area. A core area development of note is the Brighton Pavilions, a commercial development located just south of the existing RTD park-n-Ride.

In the vicinity of I-76 to E-470, existing development includes residences and businesses along 104th Avenue, gravel mining to the west on 112th Avenue and Nome Street, and residential/business development north of 120th Avenue. Undeveloped areas are uncultivated or used for agricultural purposes.

Commerce City

The Derby redevelopment area is planned as the primary downtown area for Commerce City. The Derby area is located in a triangular-shaped property bounded by the Burlington Northern Santa Fe (BNSF) rail line, 72nd Avenue, and Quebec Street and will feature mixed-use development. The Prairie Gateway area is located in a narrow parcel of land that extends from 56th Avenue, north to 64th Avenue, and is bounded by Quebec Street. The Wembly Arena, located along 64th Avenue and bordered to the west by the BNSF rail line, has been identified by Commerce City as a future Transit-Oriented Development site.

Public facilities of note include the new soccer facility for the Colorado Rapids, which is currently being built on the east side of Quebec Street at approximately 60th Avenue, and the Commerce City government facilities (City Hall), located just east of Quebec Street on 56th Avenue.

The Dunes and Bell Creek developments are two large residential areas along US 85. Another significant residential development located close to the study area is Reunion, which is a master planned community located east of SH 2 and west of Tower Road along 104th Avenue.



Existing Derby Redevelopment area

EXISTING AND FUTURE CONDITIONS

The Northeast Denver metropolitan area is a rapidly developing area of residential, office, industrial, commercial and recreational development. As land in this area continues to develop and the roadway network is expanded, space for high-capacity transit will be increasingly hard to preserve. The NATE study was undertaken to examine options for use of the funds allocated in the FasTracks program to secure ROW preservation between Denver and Brighton for future fixed-guideway transit. The purpose of this section is to identify existing and future conditions within the study area in an effort to highlight potential issues, opportunities and constraints as it relates to the use of fixed-guideway transit.

Existing Conditions

Demographics

Employment and population density information was compiled based on DRCOG land use data. The use of DRCOG data is important since this regionally approved database is required for subsequent Federal Transit Administration (FTA) approvals. Land use information is based on plans and data submitted to DRCOG by communities within the study area. For the purposes of this study, existing condition data is based on year 2005 information. Future conditions are based on year 2030 projections.

Existing Land Use

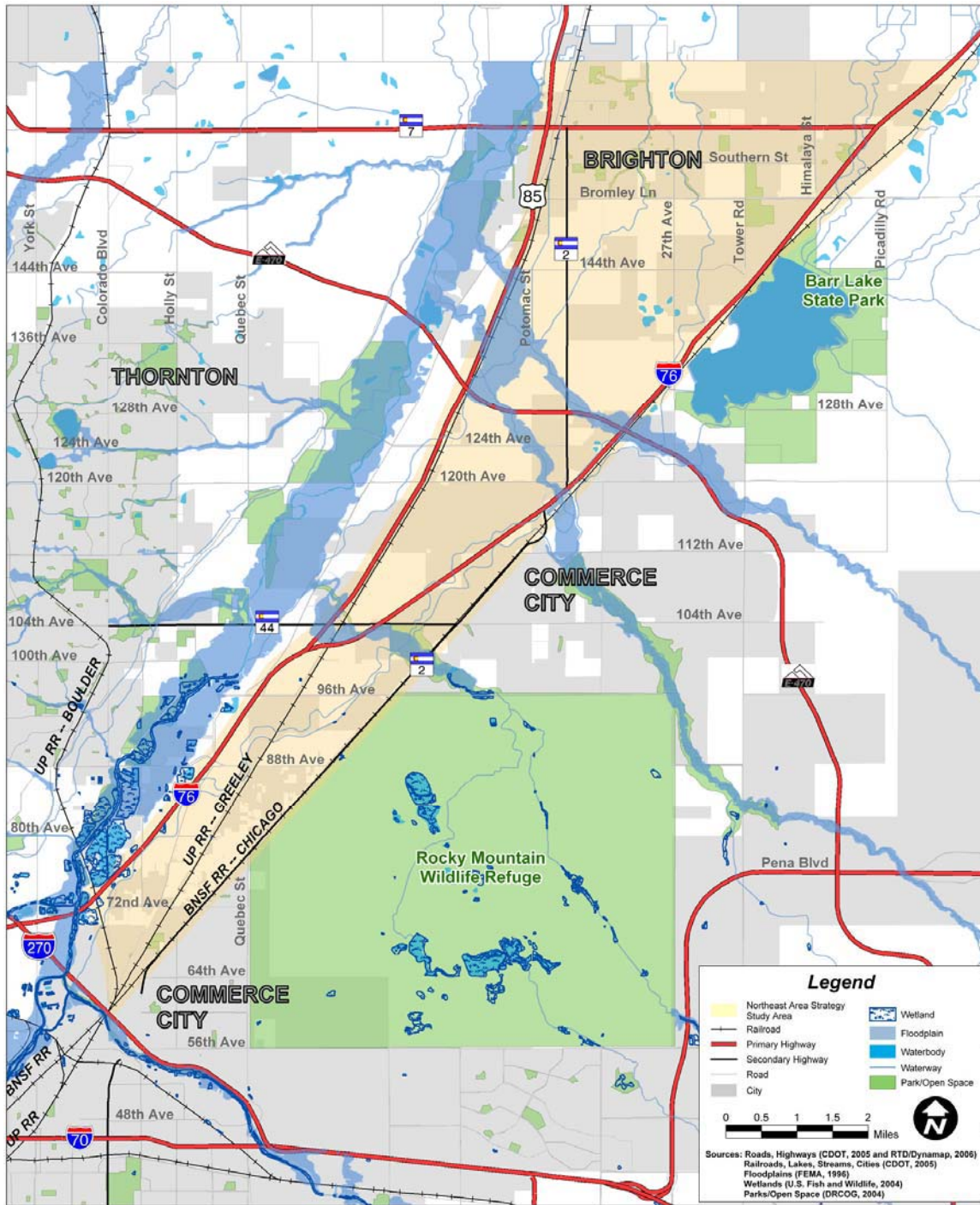
Land Use information was obtained from the cities of Brighton and Commerce City and from Adams County. Existing zoning information and future land use information was gathered via existing maps provided by the jurisdictions. This information was compiled into a single map for the study area (see Figure 3, Existing Zoning/Land Use Map). Note, existing land use information reflects information obtained on city and county maps at the time of this study and may not reflect the most current information. Land use plans and policies from the cities and county were reviewed. In addition, information was provided by municipal and county staff. A summary of current land use information within the study area is provided below.

Brighton

The Brighton core area is defined as an area bounded by Weld County Road 2 (WCR 2) to the north, Bromley Lane to the south, Buckley Road to the east, and US 85 to the west, with a portion extending west to near the South Platte River. Downtown Brighton north and south of State Highway (SH) 7 (Bridge Street) is an area of ongoing redevelopment, and along with the U.S. 85/Bridge Street park-n-Ride, the area is designated as a Transit Oriented Development (TOD) planning area/activity center by DRCOG. City officials view an end-of-line transit station as a key catalyst for the



Figure 4: Environmental Resources Map



Future Conditions

Demographics

The project team collected current and projected population and employment estimates within the study area to examine projected growth trends and to identify existing and emerging activity areas. Information was obtained from DRCOG for years 2005 to 2030. This information is illustrated in a series of population and employment maps. Areas are defined by Traffic Analysis Zones (TAZ).

Population within the study area is expected to increase substantially, with the largest growth occurring north of SH 7 and the area north and south of 104th Avenue and west of I-76. Other significant growth locations includes an area located immediately east of SH 2 and north of 136th Avenue. A lesser degree of population growth is expected along the US 85 corridor, and south of 104th Avenue and west of I-76.

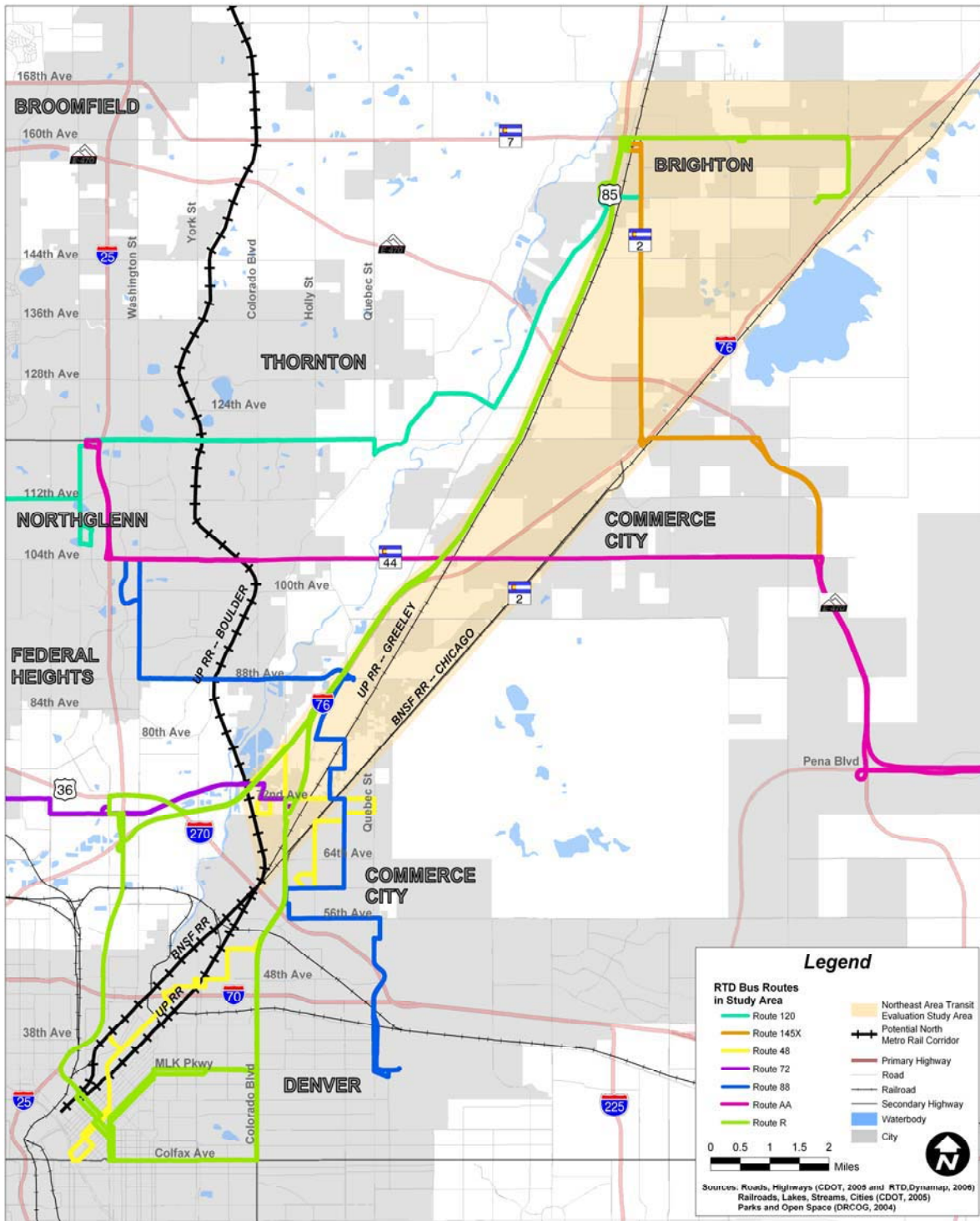
The project team collected base level employment data and projected employment information within the study area (see series of employment maps that follow).

Locations within the study area that will contain the greatest increase in employment between 2005 and 2030 includes the Prairie Center, located south of Bromley Lane and west of I-76. This development area includes the regional hospital campus and related medical services. Areas south of 104th Avenue between US 85 and SH 2 is also slated to incur significant employment increases. The Adams County Government Center, located in a triangular piece of property south of E-470, and east of SH 2 and west of I-76, is expected to attract a moderate employment increase with a total of approximately 2000 employees between 2005 and 2030. Downtown Brighton is also projected to have a moderate employment increase by 2030. The US 85 corridor between E-470 and SH 7 is expected to have a low to moderate employment increase in comparison to other TAZ's within the study area.

In order to accurately reflect the 2030 Total Employment and Total Employment Increase in the study area, DRCOG's base information was supplemented with the most recent development plans within the study area, including:

- Office and retail zoning instead of industrial for the area between US 85 and I-76 and 104th and 112th Avenues.
- The increase in residents and commercial/office development from the Adams Crossing Development (124th Avenue and SH 2).
- Employment growth from the Adams County Government Center (E-470/SH 2/I-76).

Figure 5: Existing Transit System Map



be retrofit to accommodate high-capacity rail. The existing facility is a two lane bridge. An issue at the Sable/E-470 interchange may be crossing 3rd Creek, located just north of the interchange.

I-76

I-76 is the primary interstate that extends through the study area. The interstate primarily consists of four lanes with a wide landscaped median, and is a main roadway for travelers between Denver and northeast Colorado. I-76 merges into I-25 in Commerce City. As of 2005, the daily traffic volume in the segment between Brighton and Commerce City averaged 33,375 vehicles per day.

Existing Transit Services and Facilities

RTD operates local, regional and express bus

routes within the study area (see Figure 5, Existing Transit System Map). Three park-n-Rides are located in the study area:

- US 85/Bridge Street park-n-Ride, located in downtown Brighton. This park-n-Ride features 234 parking spaces, 3 bike rack spaces and no bike lockers. Routes that service this park-n-Ride include Route 120 – 120th Avenue Crosstown, Route 145X – Brighton/DIA Express, Route R – Brighton/Denver, and Brighton call-n-Ride service.
- Commerce City park-n-Ride. This facility is located at 72nd Avenue and US 85, and features 83 parking spaces, 2 bike rack and 4 bike lockers. Routes that serve this park-n-Ride include Route 48 – East 48th Avenue/Commerce City, Route 72 – 72nd Avenue Crosstown, and Route R – Brighton /Denver.
- 104th and SH2 park-n-Ride. This facility is located in Commerce City, and features 20 parking spaces and no bike rack spaces or bike lockers. The only route that serves this park-n-Ride is Route AA – Wagon Road/DIA, which provides service along 104th Avenue to Denver International Airport (DIA).

I-76 northbound at US 85 interchange



Existing Transportation Conditions

Four primary transportation corridors exist in the study area: SH 2 and US 85 extend north-south in the study area, and E-470 intersects the study area in the area between 124th and 136th Avenue. I-76 extends north and east from Denver to the state line in northeast Colorado. A description of each is provided below.

Highways

SH 2

SH 2 is a main roadway corridor in the study area that serves Commerce City north to its intersection with I-76 near 120th Avenue. North of 120th Avenue, SH 2 becomes a two lane arterial road and extends north to SH 7 in downtown Brighton. In Commerce City, SH 2 provides access to the Prairie Gateway development from 72nd Avenue. This development is a focus of current strategic planning efforts within the city. SH 2 also provides access to the Derby redevelopment area, located near the intersection of 72nd Avenue and Quebec Street. The City would like SH 2 to be improved to a boulevard design leading to the Derby development area. As of 2005, the daily traffic volume south of the I-76 interchange was 14,875 vehicles per day. North of I-76, daily traffic volumes along SH 2 averaged 9,300 vehicles per day (traffic volume source: 2005 Colorado Highway System Traffic Volume Map).



SH 2 north of 96th Avenue

US 85

US 85 is another main roadway corridor within the study area. The highway is a primary thoroughfare between Denver and Brighton, and is primarily a five lane facility with speed limits ranging from 45 mph to 55 mph. Land between the roadway and rail line is largely vacant. One lane of US 85 extends into the UP ROW. As of 2005, the daily traffic volume in the segment between Brighton and Commerce City averaged 37,100 vehicles per day.



US 85 near Bromley Lane

E-470

Access to the tollway is available from US 85 and I-76. The typical ROW along E-470 is 300 feet with an additional 75 foot easement on each side of the roadway, which enables the facility to accommodate potential future fixed-guideway transit. As of 2005, the daily traffic volume in the segment within the study area averaged 14,500 vehicles per day.

A future interchange with E-470 is planned at Potomac Street. The total ROW of E-470 at Potomac Street is 450 feet. An overpass exists at Sable and E-470. Depending on infrastructure requirements, the Sable overpass could potentially



E-470 near 104th Avenue

Figure 6: 2030 Total Population

