MULTI-MODAL TRANSPORTATION

The City of Thornton plans for and implements transportation services and facilities for several different travel modes along with other transportation providers such as CDOT, RTD, Weld County and Adams County. The current transportation-related plan, the *Thornton Thoroughfare Plan*, however only addresses roadway needs. The effort to develop the *Thornton Transportation Plan* included consideration of all modes, hence the wording change in the title from "Thoroughfare" to "Transportation" plan.

The definitions of two terms, multi-modal and intermodal, go a long way towards describing the City's transportation planning process. Multi-modal refers to the provision of services and facilities for several types of primary transportation modes, including the automobile, bicycle, pedestrian, and transit. In order to develop a balanced system of multiple modes, transportation planning must include all of these modes, as well as travel demand management programs that promote alternative modes and provide incentives to reduce single occupant vehicle trips. Intermodal refers to the connections between modes.

The basic concept of intermodalism is to provide a seamless transportation system that facilitates easy and efficient movements between modes.



Multi-modal and intermodal planning also incorporates airport, trucking, and railroad as viable travel options. The provision of these transportation services and the facilities necessary to support them generally only involve the City to the extent roadways should accommodate trucking activities, provide for the efficient movement of freight goods, and include safe interfaces between modes (e.g., railroad crossings). These modes must be considered in the City's planning process to some degree so that intermodalism is facilitated where they influence or physically affect Thornton's roadway, trail, and sidewalk systems.

The *Thornton Transportation Plan* is geared toward preserving right-of-way needs for future transportation facilities while identifying a 2035 roadway plan. While right-of-way needs are commonly interpreted as the space needed for future roadways, these roadways are truly multi-modal corridors. They accommodate bicycles and pedestrians along their wide sidewalks and bike routes/lanes. Transit buses utilize the roadway system for their operations, and roads will assist with moving transit riders to and from the future North Metro commuter rail line. Bus

pullouts are being considered for future street designs so that RTD buses can pull out of the main traffic lanes to load and unload passengers. Finally, roads provide mobility for automobile users, the freight/trucking industry, and others needs.

Multi-modal travel was considered in the Plan's development. For example, the City's traffic model takes into consideration the transit trip forecasts from RTD's FasTracks and FasConnects systems. Also, bicycle and pedestrian trips were separated from the roadway analysis, and the Plan includes the effect of carpooling due to regional travel demand management (TDM) programs and expansion to 120th Avenue of the high-occupancy vehicle (HOV) lanes on I-25 and beyond as approved by the North I-25 EIS. These multi-modal considerations have the cumulative effect of reducing vehicle traffic demand on the roadway system in and around Thornton. If multi-modal options did not exist or were not properly considered, the traffic demand on the City's roadway network could be higher or lower in the 2035 and Buildout scenarios, and potential decisions with regard to future capacity improvements could otherwise be erroneous.

Multi-modal Approach

The Denver region's, and more specifically Thornton's vitality and the quality of life of its residents depend greatly on mobility. Mobility refers to the ease of moving people and goods from place to place, the accessibility of destinations, and the provision of a variety of travel options and modes.

Rapid growth in Thornton and the region poses a significant challenge to providing adequate mobility to all citizens. By 2030, the City's population is expected to exceed 175,000 people, a 46% increase over the current population. Regionally, DRCOG employment and population projections suggest that an additional 1.5 million residents and 950,000 more jobs will place much greater demands on our regional transportation system. These statistics highlight the need for advance planning, design and implementation of a multi-modal transportation system that will accommodate the changing transit needs of Thornton's growing population, while providing efficient regional connectivity.

Multi-modality simply means including and honoring all forms of personal mobility in the City's transportation plan. These modes include, but are not limited to pedestrian/foot travel, bicycle, passenger rail, freight rail, bus transit, truck and automobile. To further explore multi-modality and how it can relate to personal travel throughout the Denver Metro region, go to the following web link.

http://www.drcog.org/index.cfm?page=Transportation

Transit Element

Rail Transit

Building off the positive momentum local voters expressed in 2004 when they approved the FasTracks regional transit system, the Regional Transportation District (RTD) and its consultants, in association with the many local governments that will benefit from the system, have championed the planning of the Denver Metro Region's premiere surface rail transit system. RTD is currently proposing to complete a major portion of the entire system, including the North Metro Line through Thornton, by 2017.

The following link provides up-to-date information and status of the various components of the FasTracks project, including all of the proposed rail lines to be constructed by 2017.

http://www.rtd-fastracks.com/main_1

North Metro Line

Based on draft 2009 FasTracks planning documents and City supported station concept plans, Thornton residents will be served by six passenger rail transit stations located along the North Metro Corridor. Five of the stations will be located within Thornton (88th, 104th, 124th, 144th, and 162nd Avenues) and one will be located in the City of Northglenn (112th Avenue).

Accompanying every transit infrastructure project that utilizes federal funds is an assortment of studies and plans that are being completed prior to construction. One of the most important studies that will help determine the final alignment and station placement along the North Metro Line is the North Metro Draft Environmental Impact Statement (DEIS). Currently, the DEIS is undergoing final preparation and internal reviews. It is expected to be circulated publicly in July/August 2009. The DEIS will present the final definition of project alternatives and station locations, while quantifying the project benefits and impacts, and identifying potential mitigation strategies as appropriate. Key recommendations that will be presented in the DEIS include the following:

- Alignment including the cross-country segment in Commerce City
- A preferred station site at selected station target areas
- Preferred rail vehicle technology electric multiple unit (EMU)

The public and local government agencies will be invited to comment on the DEIS during the 45-day circulation period and at forthcoming public hearings. See the RTD FasTracks website for more details.

In support of efficient transit connectivity across the City, Thornton's 2007 Comprehensive Plan Policy 6.4.3 stated that the City must "Provide efficient transportation connections between FasTracks stations and North Washington employment centers."

RMRA

The Rocky Mountain Rail Authority (RMRA) is a governmental body comprised of 45 member-counties and other organizations with constituencies along both the I-70 and I-25 corridors. RMRA is conducting a one-year study of the technical, financial and economic feasibility of implementing high-speed intercity passenger rail service within Colorado and into neighboring states. Ultimately, RMRA seeks to provide seamless travel throughout the state's most populated corridors. The current feasibility study, funded jointly by the Colorado Department of Transportation (CDOT) and RMRA member entities, commenced in mid June 2008.

If the study determines that high-speed rail is feasible in one or both of the corridors noted above, then the Colorado corridor will be presented to the Federal Railroad Administration (FRA) for potential designation as the nation's eleventh High-Speed Rail Corridor.

To learn more about the Rocky Mountain Rail Authority visit the web link shown below.

http://rockymountainrail.org/

Rail Crossings & Quiet Zones

When passenger and freight rail is proposed as an amenity serving existing neighborhoods in cities like Thornton, the public outcry surrounding noise, vibration, and other environmental impacts is usually most pronounced from residents living in close proximity to the proposed rail facilities. In order to minimize adverse environmental effects, the FRA has established rules which allow local communities to reduce train horn noise at streets with at-grade rail crossings.

The FRA has created a Quiet Zone process, through which certain engineered mitigations including crossing bars, signal lights, and median locations that offer local communities a level of safety and assurance that their environment will be minimally impacted by passing trains, while allowing transit providers the ability for safe move trains through intersections without using their horns at all. The Quiet Zone process, reducing the allowable noise level from 110 decibels to 70 decibels, will be applied at all qualifying at-grade intersections within Thornton. This process provides significant noise reduction benefits to residents during the evening and early morning hours when ambient, or background, noise levels are at their lowest recorded levels.

Ambient noise levels in Thornton near the proposed North Metro Corridor rail line are relatively low when compared to other jurisdictions, like Denver, simply because there are notably fewer people and active businesses within the City of Thornton versus the City of Denver. Initial FasTracks consulting reports indicate that in order to mitigate the adverse noise impacts resulting from passenger rail through Thornton, concrete sound walls of varying heights and totaling in excess of 50,000 linear feet in length will be proposed along many portions of the rail line.

Vibration is addressed by using noise dampening materials and fittings during track construction.

The information listed in this plan only briefly touches on the guidelines and process for Quiet Zones, to read more information about Quiet Zones, visit the web link below.

http://www.fra.dot.gov/us/content/1318

Freight

Currently, only a few businesses located in the Northglenn Business Park receive small weekly freight shipments along the proposed RTD North Metro rail line. RTD is presently working with the Union Pacific Railroad to formalize an agreement stipulating that once passenger service along the North Metro line begins, all freight deliveries to existing Union Pacific Railroad customers located along the corridor will be shifted to evening and weekend delivery schedules to better accommodate passenger train timetables.

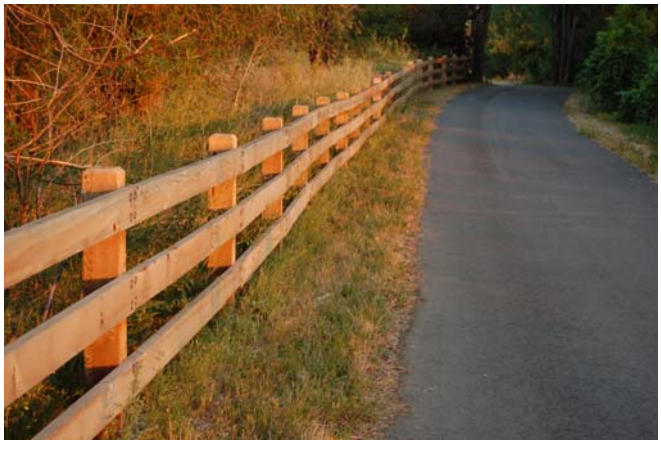
Bus Transit

The Regional Transit District (RTD) currently serves the City of Thornton and greater North Metro area commuters with two major park-n-Ride facilities, located along the I-25 corridor at the Thornton park-n-Ride (88th Avenue) and the Wagon Road park-n-Ride (120th Avenue). The L & B regional and 120x & 122x express bus routes have services at the two nearby park-n-Rides, which capture ridership from RTD local bus routes that serve Thornton. Additional bus service will be provided by RTD's expanded call-n-Ride program, with eight proposed service areas slated for opening in conjunction with North Metro rail service. (See Appendix K or visit the web link below)

http://www.rtd-denver.com

Bicycle Element

As traffic congestion continues to increase and the public's concern about air quality grows, more cities and communities are discovering the inherent benefits of serving people's mobility needs with bicycling in conjunction with public transportation. Through revisions to The Safe, Accountable, Flexible and Efficient Transportation Equity Act Legacy for Users (SAFETEA-LU), the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) continue to support the vision of more integrated approaches to a multi-modal transportation system across the United States. A major focus of this legislation directly supports expanding bicycle friendly public transport. More information regarding legislation on these issues, visit the web link shown at the end of this section.



By actively focusing on integrating bicycles and public transit, Thornton can realize several benefits for:

BICYCLISTS – transit access allows bicyclists the opportunity to extend trips. Where physical conditions prevent continuous bike trips, public transportation can be an integral link to previously inaccessible territory via bicycles as a single mode.

PUBLIC TRANSIT PROVIDERS – Improved bike access attracts new transit riders. Bicyclists represent an important weekend or off-peak market, when transit ridership is typically lower and transit capacity goes unutilized.

LIVABLE COMMUNITIES – Bicycles and transit provide more mobility to everyone, particularly those who because of age, disability, or income are unable to drive. Less automobile traffic through neighborhoods contributes to a safer, quieter, and more pleasant environment.

EVERYONE – Safe, convenient transit service and bicycle facilities attract more passengers and increases the viability of existing transit services. Fewer auto trips reduce pollution and emissions, and may lead to decreased traffic congestion.

Chapter 7 of Thornton's Comprehensive Plan speaks to the need for integrated transit options in Major Strategy 2, Protect and Enhance the Public Realm, Policy 7.2.4 which "Require[s] the local transportation system to be designed to link housing, shopping, employment, parks, schools, and civic facilities with road and pedestrian facilities."

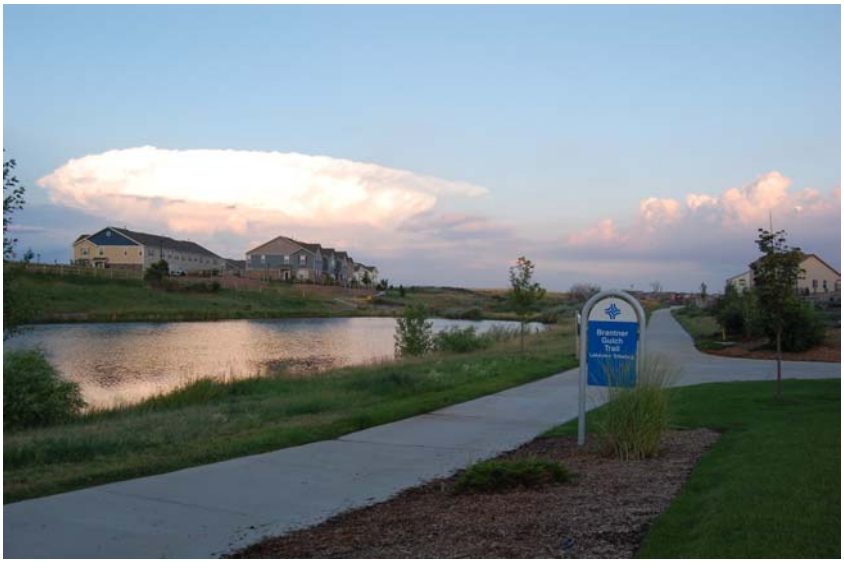
http://www.fta.dot.gov

Pedestrian Element

Pedestrian movement within a city is a measurement of the transportation systems overall health. Walking is still the first mode of travel and remains essential for the success of all other modes. A person's safety, convenience, and enjoyment of his surroundings should be the foundation of and reinforce the overall framework of Thornton's Transportation Master Plan.

To encourage more walking, the Transportation Plan has coordinated with the City's Parks and Open Space Master Plan goals, which include:

- Providing citizens with a continuous network of trails.
- Ensuring a safe walking environment through trail material choices, lighting, vegetation management, and proper operation and maintenance.
- Creating a pedestrian-oriented environment through high quality urban design and amenities.
- Providing connectivity to transit stations and bus facilities.
- Educating and enforcing the rights of all trail user groups including pedestrians, bicyclists, and vehicle operators that interact with trail users.



The City of Thornton is currently in discussion with RTD regarding the feasibility of a new trail running north-south along the entire length of the proposed North Metro rail line within the City using the existing railroad right-of-way. Representatives are confident that a trail of this magnitude will be permitted along the rail line. This proposed trail could provide a major link between Thornton's communities and the transit stations contemplated for Thornton. In addition to this potential trail, the City has also sketched up some trail links and bike lanes around each FasTracks station that it believes will need to be in place once this project nears completion. These Trails to Rails sketches are shown in Appendix C.

Currently, the City of Thornton has over 77 miles of paved trails and 3 miles of soft surface trails that connect over 2000 acres of park lands from it's 81 public parks. In addition to the soft surface and paved trails, there are over 7 miles of on-street bike lanes throughout the City. In Appendix C, the 2007 existing and proposed City of Thornton Trails map is shown.

For more information on the City's parks and trails, visit the following web link:

http://www.cityofthornton.net/park/home.asp

Thornton Complete Streets Policy

On April 26, 2011 Thornton City Council adopted the Complete Streets Policy "…to ensure that roadways are designed and operated to be safe, comfortable, and convenient for drivers, bicyclists, transit vehicles and users, trail users, and pedestrians of all ages and abilities. Colorado State Law and Federal policy requires, with some exceptions, accommodating bicyclists and pedestrians in Federal Aid projects."

Implementation of Thornton's Complete Streets Policy will improve the accessibility, livability, and safety for all roadway users, while better positioning the City to receive future Federal funding. Additional benefits of a complete streets focus include the encouragement of healthier lifestyles and improved recreational activity. Complete streets, if properly constructed and maintained, may even translate into healthier businesses along our city thoroughfares.

Air Quality

In late 2007, the Denver metro region along with areas in the North Front Range including Adams County, was designated a "nonattainment" area with federal 8-hour ozone standards.

Ozone, a beneficial gas that forms a protective blanket in our upper atmosphere regulating the amount of radiation the earth receives from the sun, also forms closer to the ground in the presence of pollutants released by oil and gas producers, manufacturing sources, and combustion engines. Ground level ozone is just one of the many dominant gases that act to trap the heat produced by human processes, which results in the often discussed "greenhouse effect."

Since the 1990s, the State of Colorado has been aggressively stepping up air pollution regulation and enforcement in an attempt to curb the deleterious effects of ozone and other pollutants. The City of Thornton has made major improvements in reduction of the "other pollutants", such as CO, NOx and PM10, which contribute to the brown cloud typically seen during the winter months. Providing more efficient modes of transportation is a leading method of reducing the "bad" ozone that forms close to earth's surface, thereby reducing the greenhouse effect.

State air pollution experts have computer models that monitor the Denver metro region's ability to "pass" federally mandated air quality tests, however increasingly hot summers combined with growing traffic congestion mean that nonattainment will continue to plague our region. As environmental consciousness grows, increasingly innovative techniques are being discovered to quantify and mitigate these problems. The City of Thornton is proactively engaging with an outside firm that specializes in the application of one of these innovative techniques, specifically quantifying greenhouse gas emissions at the City scale. The following is an excerpt from one of the reports this company has completed for another municipality in the Denver region:

> "There is widespread scientific consensus that societal emissions of greenhouse gases (GHG) are beginning to impact the Earth's climate system, threatening the productivity and survival of our natural and economic systems. Societal emissions of the three dominant greenhouse gases – carbon dioxide (CO2), methane (CH4) and nitrogen oxides (NOx) – are almost entirely from the burning of fossil fuels such as coal, natural gas, gasoline, and diesel. The supply of cheap fossil fuels is on the decline and the U.S. is highly dependent on vulnerable foreign supplies to meet its demand for fossil fuels. Clean and stable energy supplies are one of the most important challenges to the sustainability of our society."

Thornton's proactive stance in taking action to limit societal emissions of greenhouse gases offers the unique opportunity to protect against the risk of climate change, while limiting our future dependence on foreign oil, and moving toward a new energy economy, with the promise of healthier lifestyles and more vibrant societies.

For more information regarding the regional air quality, visit it's website below.

http://www.raqc.org/

Transportation and Public Health

The link between transportation and public health is interwoven in the individual mobility choices Americans make everyday. Simply stated, personal health and well being can be dramatically improved by increased and better use of our public transportation system. Numerous medical studies indicate that even 30 minutes of moderate daily activity, including 10 or 15 minute walks to and from public transit curbs obesity, inactivity, and suburban sprawl. Visit the web link listed at the end of this section for more information.

To encourage more people to choose public transit over the single occupancy vehicle, it is incumbent upon cities and their representative municipal planning organizations to take full advantage of federal and state level funding for implementing improved public transportation systems. As important as funding is for transit projects, committing to educating our citizens and informing existing transit users to the benefits of investment in transit is essential for transportation system success. RTD, DRCOG, and member municipalities like Thornton must strive to create policies that lead to the creation of balanced transportation systems that do not promote auto-centric sprawl.

The American Public Transportation Association (APTA) has coupled with the Public Transportation Partnership for Tomorrow (PT2) to produce an informative pamphlet on the benefits of public transportation that is essential reading for policy makers and citizens alike. A link to the document is provided below:

http://www.publictransportation.org/pdf/reports/better_health.pdf