

Executive Summary

The city of Thornton, Colorado has a need to provide increased public transportation services to accommodate its rapidly growing population. Thornton has historically been an automobile-dependent suburban community and the current levels of traditional transit service will not meet the city's future needs. There is a particular need to provide increased transit options for residents who do not drive due to age, financial limitations, or other reasons. This report is concerned with identifying strategies to help Thornton overcome these challenges and realize its goals of a safe and effective multi-modal transportation system.

The topic of suburban transit systems is growing in significance, as communities such as Thornton seek to transition from their automobile-dependent past, towards a multi-modal, equitable, and sustainable future. These communities face the challenge of adapting from decades of sprawling development that prioritized the automobile over public transportation. Traditional transit systems have prioritized urban areas and failed to adequately serve the growing residential and employment centers in suburban areas. Additionally, poverty rates are now growing most quickly in the suburbs, and this population enjoys fewer transportation options than their urban counterparts. The issue of low-density development has led some planners to believe effective suburban transit systems are beyond reach, yet some solutions can overcome the challenges of suburban form.

This report researched the history of suburban transit planning in the United States and uncovered several important findings for Thornton's situation. Traditionally, a lack of population density has been used to justify not investing in suburban transit systems, but recent research into system solutions has revealed that effective and efficient suburban transit systems are possible through the creation of complete networks. Many researchers are now contending that multi-destinational transit systems perform better than the older radial systems which focused on the central business district. Multi-destinational systems prioritize increased access for intrasuburban travel and dispersed employment centers, through convenient transferring between modes and service routes that follow arterial corridors. Recent research by Paul Mees and Gustav Nielsen into the network effect promotes the implementation of complete

multi-destinational systems. Mees and Nielsen contend that transit systems are best served by increasing the range of possible destinations and connections, rather than trying to improve isolated routes. Together these system strategies provide a viable way to overcome the traditional notion that population density is determinative for effective transit.

Thornton is particularly concerned with providing increased transit access for the low-income and senior population in the city. They have rightly identified these populations as only 25% of suburban residents without a car commute by transit, reflecting a lack of access in their communities (Tomer & Puentes, 2011). There is also evidence that transit-oriented development can cause gentrification and displacement, reflecting a need to incorporate equity planning from the outset. Similarly, nearly forty percent of senior residents in the country face a transportation deficiency, and senior residents are less likely than other adults to take transit trips (Kim, 2011). As such, these groups require targeted solutions to address the unique transportation challenges they face.

There are several planning efforts currently underway in Thornton aiming towards increasing transit service and access across the city. In 2020, the N Line commuter rail opened, connecting Thornton with downtown Denver. The city has created station plans for the four N Line stations in the area, which seek to implement transit-oriented development with a mix of uses, pedestrian-friendly environments, and connections with bus service and trails. There is also a plan to introduce a bus rapid transit system along State Highway 7 which would connect Thornton with the north Metro area and Boulder County. These plans represent the foundation upon which to build a future complete multi-modal network.

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This report provides a range of recommendations which Thornton should incorporate into their future transportation planning, organized from short to long-term solutions. The recommendations reflect the fact that Thornton needs services to supplement and build upon the existing transit services offered by RTD. The short-term solutions are targeted leverage points that Thornton can use to fill in existing gaps and begin to create the connections to build towards the long-term realization of a complete network. A summary of the recommendations is presented below, ranging from short-term to long-term solutions:

Targeted Local Solutions:

These strategies include carpooling, equity planning, and tactical urbanism. There is already a significant amount of carpooling in the community, and Thornton can facilitate these efforts through volunteer programs, and carpooling incentives such as reduced parking fees and HOV lane prioritization. Equity planning and tactical urbanism are best achieved through community outreach to address community needs from the outset. Equity considerations should be implemented into the station area plans for the 88th Avenue Station and 104th Avenue station. Finally, tactical urbanism strategies can be utilized to get people thinking about public space in a new way and catalyze multi-modal infrastructure changes.

Microtransit:

These strategies include shuttle services and rideshare programs. For the present, RTD acknowledges that these services are the best solution for the area north of 124th Avenue which lacks fixed route bus service. These services can be funded through a variety of options, including public-private partnerships, employer programs, and private developers. There is the opportunity for these programs to be incorporated from the beginning into the greenfield developments in the north of the city around E-470.

Transit-Oriented Development (TOD) Strategies:

Apart from the station plans, this section addresses the transportation strategies which can be implemented in transit-oriented development strategies. Parking management in TOD can reduce driving trips and encourage transit connections with the TOD area. Employers in TOD areas should be encouraged to implement programs that incentivize their employees to commute by alternative

transportation. Finally, the needs of senior residents can be met by connecting senior activity centers and implementing improved pedestrian infrastructure near these residents.

Systems solutions:

In the long term, the system solutions can be applied to realize a complete transit network within Thornton. The N line commuter rail, the Highway 7 rapid transit, and the interstate express buses will provide residents with access to various regional destinations. Internally, a network of arterial buses provides frequent service and connects riders with the transit hubs and employment centers along Interstate-25. Seamless transfers between the rail and bus lines allow users to travel to all corners of the city without a private vehicle.

Ultimately, this report provides a range of flexible and innovative solutions which are needed to strengthen the current transit service within Thornton. These recommendations are adapted to Thornton's context and supported by the findings of a comprehensive research review of the evolution of thinking regarding suburban transit planning. They represent a model project, for suburban communities such as Thornton seeking to transition from the automobile-oriented development of past decades towards an equitable and sustainable multi-modal future.

Alternative Transit Systems in Thornton, Colorado

Thornton is seeking to provide increased public transportation options to accommodate its growing population. The city envisions a sustainable and equitable multi-modal transportation system.

Research Findings

System Solutions	Residents who Do Not Drive
<ul style="list-style-type: none"> • Multi-destinational systems and the network effect • Density is not determinative 	<ul style="list-style-type: none"> • Low-income and senior populations face transportation barriers • Suburban transit use is low even among non-drivers

Existing Conditions

Mapping
<ul style="list-style-type: none"> • N Line commuter rail opened in 2020 • Several regional transit projects being planned • Thornton has a need to supplement RTD's existing service

Funding Strategies

Federal Sources	State Sources	Other Sources
<ul style="list-style-type: none"> • Federal Grants • FTA programs 	<ul style="list-style-type: none"> • State Grants • CDOT programs 	<ul style="list-style-type: none"> • Special Districts • Parking/Impact Fees • Private Sources

Case Studies

Complete Networks	Flexible Transit	Transit-Oriented Development
<ul style="list-style-type: none"> • Toronto • Ottawa 	<ul style="list-style-type: none"> • Lake Nona Shuttle • Lone Tree Link 	<ul style="list-style-type: none"> • Seattle • Arlington

Final Recommendations

Targeted Solutions	Microtransit	TOD Strategies	Future Network
<ul style="list-style-type: none"> • Carpooling • Equity Planning • Tactical Urbanism 	<ul style="list-style-type: none"> • Shuttle Services • Rideshare Programs 	<ul style="list-style-type: none"> • Parking Strategies • Employer Programs • Senior Strategies 	<ul style="list-style-type: none"> • Regional transit service • Frequent local bus service • Prioritize transferring