



DENTON COUNTY TRANSPORTATION AUTHORITY

Long Range Service Plan Executive Report

Final



In association with
Design Workshop
Dikita Management Services
Pavlik and Associates
Urban Analytics

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EXECUTIVE REPORT

For the past few years, the Denton County Transportation Authority (DCTA) has focused on implementing the first phase of rail service, known as A-train, as well as modified local bus routes in Denton and Lewisville and demand-response service in Highland Village. With A-train now in operation, the agency is looking longer term at future needs and potential transit corridors.

The Long Range Service Plan provides a roadmap for DCTA to invest in future regional transit services to address the mix of priorities, funding sources, and transit needs in Denton County. The plan includes a set of alternatives and recommendations based on Denton County's future mobility needs, with short-term (within five years) and long-term strategies for service enhancements, expansions, and capital investments. Implementation of this plan is contingent upon the Authority's financial capacity and the identification of additional revenues.

WHY A LONG RANGE PLAN?

Denton County is a nice place to live. It has vibrant communities and neighborhoods with distinctive personalities. Residents value access to rural landscapes and urban areas. The county hosts community events and festivals, has noted colleges and universities, and has a growing concentration of major employers. DCTA has worked to make Denton County a livable place, with transit supporting access to places to live, work and play. To keep up with growth and changes, transit services must also mature to better meet the needs of Denton County and to become a more critical part of the infrastructure.

State, regional, and local governments are working to ensure that growth is not haphazard, and instead becomes a tool for enhancing communities and improving access among them. These efforts were outlined recently in Mobility 2035, which was developed by NCTCOG. As the organization charged with coordinating regional transportation planning efforts, NCTCOG outlined a series of strategies for accommodating growth in ways that enhance the quality of life while promoting a vibrant business climate and protecting the Dallas-Fort Worth region's unique environment. DCTA and other regional transit agencies, as well as local governments, are using Mobility 2035 as a basis for their own planning efforts, and their own efforts will be fed back into the update of Mobility 2035 in 2012. DCTA's Long Range Service Plan is one part of that larger effort, identifying strategies that DCTA will pursue in order to accomplish Denton County's and the region's larger goals.

Dramatic future population growth will demand that governments and agencies at all levels focus on moving people efficiently within existing corridors and rights of way. Economic growth in Denton County will depend on continued investment in a transit system that can provide people efficient access to jobs, schools, shopping, medical services, recreation and the other life activities that make up a vibrant community. Achievement of other land use, financial and equity goals also rely heavily on a well-formed public transit system.

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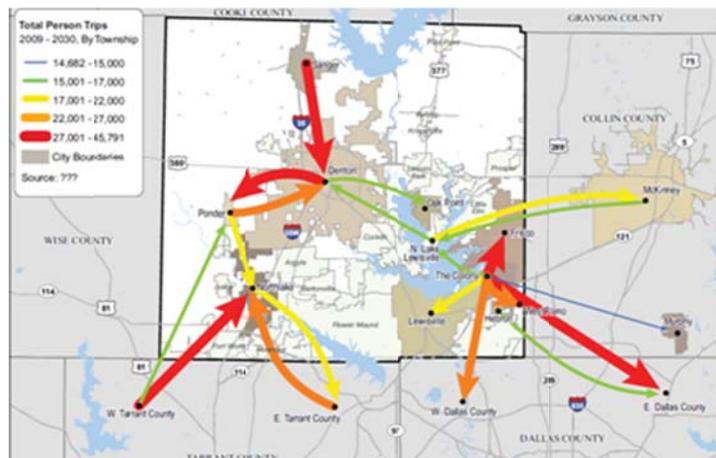
The role of the Long Range Service Plan is to provide a roadmap for decision making about transit investments in Denton County over the next 25 years, in support of the Mobility 2035 plan developed by the North Central Texas Council of Governments (NCTCOG). The Long Range Service Plan provides recommendations regarding how transit can help to support Denton County's health, economy and environment. It recommends specific services in specific corridors, with associated recommended service spans, frequencies, capital investments, years of implementation, etc. As a long-range plan, it can make assumptions about, but cannot predict changes in the environment, funding, community support, political interests and local priorities for investment. Thus, the plan provides the framework for future decisions, but more detailed planning by the DCTA Board and staff is required to carry out the recommendations of the plan.

A Long Range Service Plan is a fluid document and should not be static. The Plan should not limit what DCTA can do or hold the agency to specific dates or cost structures. Just as NCTCOG undertakes regular updates of its Mobility 2035 plan, DCTA's plan should be a working document that can be modified and updated as priorities change, new opportunities arise, or funding capacity changes. A Long Range Service Plan, by its very nature, requires additional funding to expand transportation options, focusing the agency where investments should be made. Adoption of a Long Range Service Plan by a transit agency means that the Board supports the direction of the plan and the services identified in the plan. At most transit agencies, boards then work with their staff to implement specific elements of the plan and/or seek potential funding or partners which will ultimately determine the implementation date of a new service, the level of service provided in a particular corridor, or the priorities for seeking capital and operating grants.

The Long Range Service Plan reaffirms DCTA's goals and performance standards that will be used to help officials make decisions about future investments and the implementation of new services. The recommended transit corridors and discussion of improvements to the existing system are based on planned land uses, community values, environmental benefits, economic potential and deliverability. The Long Range Service Plan summarizes the results of outreach and data analysis and is intended to provide guidance on how DCTA's goals can become a reality.

UNDERSTANDING THE LONG-TERM PLANNING CONTEXT

Defining future transit service corridors relies on an understanding of current services provided by DCTA, upon which new services can be built. It also requires an understanding of population, land use and travel demand characteristics in Denton County.



A significant increase in travel is projected for Denton County.
Source: Nelson\Nygaard Associates

Demographics, Population Growth, and Travel Demand

Population growth is projected to be significant. The City of Denton's population is expected to increase in size by nearly 150% by 2040, while significant growth is anticipated in other cities as well, notably Frisco, with high population growth projected in the smaller cities of Sanger and Pilot Point.

Although public transportation serves a wide range of markets, certain groups are considered to be transit dependent because they have fewer transportation options than other groups. These include the following:

- **Low-Income Residents.** Although Denton County's median income is substantially higher (and levels of poverty much lower) compared to the rest of Texas, there are still a substantial number of low-income individuals within the county. Among those in Denton County who are below the poverty line, the largest proportion take public transportation to work while the second highest proportion either walk, bike, or take taxi services.
- **Seniors.** Persons age 65 and older may be particularly dependent on public transportation because they are unable to drive their own personal vehicle, choose not to, or no longer have access to a vehicle. Seniors reside throughout the county, but concentrations of seniors are found in northwest Denton (in areas served by Routes 6 and 7) and northeast Lewisville.
- **Students.** Students, both in high school and college are often groups that use public transportation in greater numbers than the general population. With the University of North Texas (UNT), Texas Woman's University (TWU) and North Central Texas College (NCTC), Denton County has a large group of student riders, and the willingness of the high concentration of students in Denton to use public transit is reflected in the high ridership on the UNT Shuttle.

NCTCOG's Travel Demand Model estimates that most individuals who live in Denton County work outside of the county, with only 37% of Denton County residents working in the county. This points to the importance of providing transportation links from Denton County to major employment destinations, primarily in Dallas County, but also in Tarrant County.

About 2.8 million trips are made each day in Denton County. Of these, about one-quarter are home-based work trips. By 2030, NCTCOG estimates that total trips will increase to more than 4.7 million. Based on the travel demand data, the highest growth in trip generation is expected to come from the area in southeast Denton County around The Colony. Areas in and around the Alliance development are also expected to see large increases in travel demand.



The Downtown Denton Transit Center, served by Connect buses and the A-train.
Source: Nelson\Nygaard Associates

Existing Transportation Network

DCTA is the primary public transportation operator in Denton County. It operates a range of services including local bus services in the cities of Denton, Lewisville, and Highland Village, A-train (and midday station shuttle bus services), university transportation operated under contract with UNT and NCTC, and Access paratransit services. Other primary regional transit operators include

- **Dallas Area Rapid Transit**, or DART, which operates a multimodal system that includes bus, light rail, high occupancy vehicle (HOV) lanes, and vanpool services for its 13 member cities
- **Fort Worth Transportation Authority**, or The T, which provides fixed route, express bus, vanpool and rider request services to the cities of Fort Worth, Blue Mound, and Richland Hills.
- The **Trinity Railway Express**, which is jointly operated by DART and The T, is a 34-mile commuter rail service linking downtown Dallas and downtown Fort Worth.
- **Special Programs for Aging Needs** (SPAN), which provides human service transportation, primarily serving Denton County's senior population in rural areas.

DCTA's transportation services include the following:

- **A-train** is a 21-mile regional rail system connecting Denton and Dallas Counties. DCTA has six A-train stations: two in Denton, three in the greater Highland Village-Lewisville area, and one at the DART Green Line at the Trinity Mills Station in Carrollton.
- **DCTA Connect** offers local fixed-route bus service in the cities of Denton and Lewisville, with nine bus routes in Denton and three in Lewisville. In January 2010, the combined Denton routes averaged 875 weekday boardings, while Lewisville services carried 219 passengers on an average weekday. Denton routes run on average headways of about 40 minutes during peak hours and midday, while Lewisville services operate approximately every 35 minutes during the peak and 70 minutes midday. Key trip generators in Denton include UNT and TWU.
- **DCTA Connect RSVP** provides peak-hour service on demand in Highland Village and north Lewisville.
- University of North Texas services are operated by DCTA in Denton, which include an eight-route weekday shuttle service and one weekend-only route for UNT through a contractual agreement. The **UNT Shuttle** service provides transportation from nearby apartment complexes to the campus, as well as circulation throughout the campus. The UNT services experience the highest ridership of any bus operations in the DCTA system. Routes average about 5,500 boarding passengers per day during the school year.
- **North Central Texas College** purchases service from DCTA to operate between Denton and Corinth, as well as to Lewisville and Flower Mound.
- **DCTA Access** service offers curb-to-curb ADA paratransit service in Denton and Lewisville. It also provides service for senior and disabled (non-ADA) residents of Denton, Lewisville, and Highland Village. Any person who wishes to use Access must complete an application, and non-seniors or non-Medicare-eligible individuals must submit a physician's affidavit of eligibility.

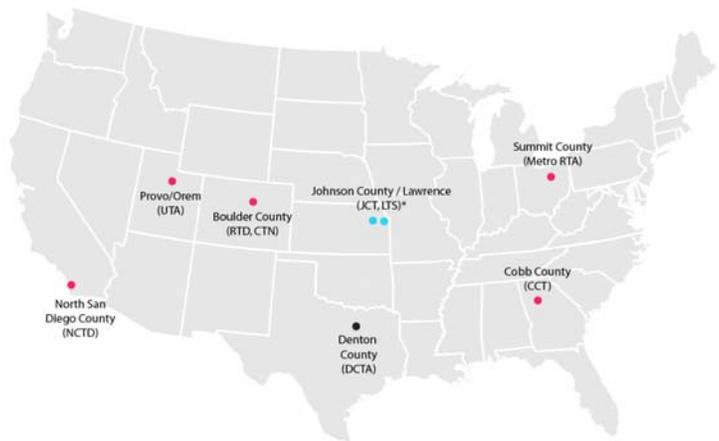
Key findings from 2009, prior to the implementation of A-train, show the following about DCTA:

- Overall, the system carried 2.1 million boarding passengers at a cost of \$6.2 million.
- On average, 17.7 passengers rode during each hour that service operated. The UNT Shuttle was by far the most productive bus service with more than 40 passengers per hour, followed by Commuter Express, the precursor to A-train service, at 12 passengers per hour.
- Operating cost per passenger was significantly higher on Connect RSVP and Access, which is to be expected for services that provide demand-response service.
- Farebox recovery was at or above 100% on both the UNT Shuttle and NCTC Shuttle due to dedicated student fees at both institutions.

LEARNING FROM DCTA'S PEERS

Five peer transit providers were selected as relevant for comparing DCTA's services, performance, and investments:

- San Diego, CA, North County Transportation District (NCTD)
- Boulder, CO, Community Transit Network (CTN)/Regional Transportation District (RTD)
- Provo/Orem, UT, Utah Transit Authority (UTA)
- Akron, OH, Metro Regional Transit Agency (Metro RTA)
- Cobb County, GA, Cobb Community Transit (CCT)



Peer findings included the following:

- DCTA provides the most cost effective service of any peer transit provider. DCTA's cost per revenue hour for both fixed route and demand-response service for 2009 was between \$49 and \$52. The national average operating cost per revenue hour (in 2008) was \$114 for fixed-route bus service and about \$60 for demand-response service.
- Most of the peer regions offer transit service to a wider service area population than what is provided in Denton County.
- Productivity (passengers per hour) on DCTA fixed-route service is comparable to its peers.
- DCTA has the highest farebox recovery ratio on both fixed-route and demand-response service, primarily because of the contribution from UNT for the UNT Shuttle.

Five peer providers were selected for DCTA. Some aspects of the service provided by Johnson County and Lawrence, Kansas are also included in this review.

Source: Nelson\Nygaard Associates

- DCTA spends proportionally more on demand-response service than fixed-route service. Compared to the peer transit providers, DCTA provides a greater proportion of service on demand-response vehicles.
- Smart card technology is common among peers. Most of the peer transit providers are either in the process of implementing smart card technology, or are currently using it.
- There is mixed use of Automatic Passenger Counter (APC) and Automatic Vehicle Locator (AVL) technology among peers. About half of the peer transit providers are using advanced technologies to assess performance on their fixed route or demand-response services. While these technologies are more common among larger transit providers (like RTD and UTA), the cost of implementing these technologies is becoming more affordable, and the tools are providing more accurate results.

PUBLIC AND STAKEHOLDER PERCEPTIONS ABOUT DCTA

On-Board Passenger Surveys

In general, DCTA riders indicated a high level of satisfaction with transit services in the community. The most frequent suggestions for improvement included providing service later into the evening and providing additional weekend service.

The image shows a survey form titled 'DCTA Connect Lewisville'. It includes a header with the DCTA logo and a language selection option 'En Español'. The survey is divided into two main sections: 'Your Starting Point' and 'Your Ending Point'. Each section asks for the location and the reason for the trip. Below these are questions about how the passenger got to the bus stop and how they got from the bus stop to their destination. The final section asks for a rating of the service and includes a household income question. The form is designed to be completed by passengers on board the bus.

Passenger surveys were conducted on DCTA Connect buses. Riders are generally satisfied with DCTA services.

Passengers on DCTA’s Connect are frequent users of the service. Nearly one-half of Denton Connect riders and 54% of Lewisville Connect riders use the service five days a week or more, and 80% of riders do not have a vehicle (car or truck) available to members of their household.

Community Intercept Surveys

Based on the results of surveys of the general public, 72% of respondents’ primary mode of transportation is driving alone, followed by 14% who primarily use public transportation. While 53% of UNT campus respondents drive alone (as their primary mode of transportation), 23% said public transportation is their primary mode.

Nearly one-half (44%) of the respondents who live in Lewisville said transit does not currently serve their community.

For those who do not ride DCTA, the primary reason is a “preference to drive,” followed by “service does not operate where I need it.”

Among new service opportunities considered to be most appealing, new local bus service and commuter bus service along I-35W (between Denton and Fort Worth) were the most popular options.

Stakeholder Input

To initiate the Long Range Service Plan for DCTA, the consulting team conducted a series of interviews in Denton County. Stakeholders gave a wide array of ideas and suggestions about DCTA's future. According to the stakeholders, the top three strengths of DCTA include (1) overall good transit service provided, (2) the agency's dedicated staff, which does a good job of managing the system and coordinating with member jurisdictions, and (3) service updates and changes that DCTA has implemented to improve efficiency and effectiveness. The three primary weaknesses of DCTA are (1) lack of public information and awareness of DCTA, (2) temporal and spatial gaps in service, and (3) transit's ineffectiveness to change people's travel behavior.



Stakeholders recognize service updates and changes that DCTA has implemented to improve efficiency and effectiveness
Source: NelsonNygaard Associates

Based on a variety of comments and opinions expressed by stakeholders, the following were identified as the key needs/issues:

- Regional transit service in the I-35W corridor
- Improved/updated equipment for DCTA
- New park-and-ride facilities
- Changes to the Access program service area and eligibility requirements
- Service growth areas
- Improved services in Denton

It was acknowledged that public funding is critical, and that DCTA needs to secure local and state funding.

Input from DCTA Drivers and Dispatchers

Transit operators have a deep, and often personal, understanding of how transit service is provided, and this is certainly the case in Denton County. Drivers indicated some operational issues including difficulty staying on schedule and not enough layover time. Drivers suggested the need for newer buses and better schedule coordination between routes.

UPDATING POLICIES FOR DCTA

DCTA's vision, goals, objectives and performance standards provide a basis for establishing transit system design and operations policies, offer a methodology for evaluating services, and provide a rationale for service expansions, reductions and eliminations.

While both performance and design standards need to reflect the best thinking of agency staff members, it is critically important that they be understood and adopted by DCTA's Board. Once adopted, these policies give decision makers a rationale for supporting or rebuking proposed

service changes. They also offer transparency for Denton County residents, allowing them to understand the basis for transit service decision-making. By having adopted standards, they can be written into approved service and operating policies, and offer DCTA and its member cities a good justification for implementing route changes or discontinuing service on some routes. The adoption process can sometimes be eased when members of the Board understand that standards inform, but do not dictate, decisions.

Standards will need to be periodically revisited and updated as operating conditions and DCTA's priorities evolve and financial conditions change. While there are benefits from maintaining a consistent set of standards, it is a good idea to consider whether they continue to reflect the community's priorities about every three years.

Vision and Goals for DCTA

Currently, DCTA's service area consists of Denton, Lewisville and Highland Village. While these communities have decided to pay into DCTA, others in the county have not, and as such, the level of transit service provided in the county (compared to peer transit providers), is relatively low. The plan assumes that DCTA will continue to focus on improving mobility for those who have few transportation options, while also focusing on intercity commute trips into large employment centers. With this in mind, the updated vision statement for DCTA is as follows:

DCTA is a leader in advancing public transportation alternatives, helping to improve Denton County's economy and environment.

The following goals, in support of DCTA's vision, mission and guiding principles were developed based on current operating characteristics, staff input, stated priorities of stakeholders, and the markets for transit services:

Goal 1: Maximize service efficiency and reliability.

- Provide sufficient safe and reliable in-service vehicles to meet the daily pullout requirements for DCTA.
- Operate on-schedule within adopted on-time performance standards.
- Operate consistent headways whenever possible.
- Consistently monitor and evaluate services in accordance with adopted service standards.
- Build services around a network of intercity and local feeder services, as well as local routes/service in urban areas.
- Minimize non-revenue hours operated on all services.
- Assign vehicles by service type.
- Maintain a minimum/maximum fleet size that ensures an optimal spare to in-service fleet ratio.

Goal 2: Maximize the effectiveness of service for DCTA's ridership markets.

- Minimize service overlap/duplications.
- Provide access to major centers of demand within DCTA's service areas.
- Ensure routes are easy to understand.
- Bi-directional service should be provided by most route segments (except unidirectional commuter services), so that transit provides an equivalent alternative for travel in both directions.

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- Transfers between routes and services should be convenient and efficient.
- Operate routes directionally, minimizing the amount of off-directional travel.
- Implement strategies to expedite transit service, particularly along congested corridors.
- Ensure adequate vehicle capacity to accommodate passenger loads within the adopted maximum load standards established for fixed-route services.

Goal 3: Increase the visibility and elevate the image of DCTA.

- Provide more effective communications and marketing tools to promote transit use and to advance the vision, mission and goals of the Authority.
- Improve the passengers' experience through enhanced bus stops and passenger amenities.
- Provide easy-to-understand signage and passenger information that promotes the ease of use of the Authority's services.
- Ensure transparency and openness to the public throughout all of the agency activities.
- Partner with local organizations, businesses, municipalities and other agencies to enhance DCTA's community outreach and information efforts.

Goal 4: Expand DCTA's services into areas where transit has a strong likelihood of success.

- Provide outreach to non-participating cities and other potential public or private partners.
- Participate in potential pilot programs and partnerships to introduce transit services into communities where service is not currently available.
- Ensure that each new service is financially feasible, meets performance standards and does not negatively impact existing services.

Goal 5: Coordinate regional services with other regional transportation providers.

- Meet quarterly with transit staff from adjacent providers to review service options and coordination opportunities.
- Co-author grant applications with regional agencies and planning entities.
- Consider joint operations/shared funding of transit services that cross county boundaries.
- Promote vanpools and other ridesharing opportunities at major employers throughout North Texas.

Goal 6: Tie the provision of transit to land-use and the resulting demand levels.

- Existing services that fail to achieve established performance standards should be considered for remedial action.
- Existing services that significantly exceed standards should be augmented.
- Primary transit services (both intercity and urban trunk services) will focus on corridors where compact development patterns that feature a mix of residential, retail, and employment activities exist. Secondary transit service – community circulators – will operate in a mix of medium density, and in some cases, lower density neighborhoods.
- Transit services may not be appropriate for some communities that do not meet service implementation thresholds.

Goal 7: Advocate sustainable development practices that support transit.

- Advocate for transit-friendly building practices, working with planning staff and developers to ensure planned and future development meets transit service access criteria.
- Work with Denton County and jurisdictions within Denton County to enact zoning regulations that encourage transit-oriented development to be focused near A-train and future rail or express bus stations.
- Recommend development practices that create an environment that encourages transit use, makes transit access more convenient, and enhances pedestrian and bicycle connections.
- Encourage higher density development and reduced parking requirements in neighborhoods within easy access to high-transit ridership corridors.
- Advocate the establishment of local policies that encourage new transit-dependent land uses to be located on transit routes.
- Support infrastructure projects that complement and/or enhance the transit system's operational needs (pedestrian access to bus stops, adequate location for passengers to wait for the bus, sufficient curb space for buses, passenger amenities and transit priority treatments).

Goal 8: Strive for financial excellence by maintaining fiscally sound and sustainable financial plans and budgets that reflect community priorities and values. At the core of financial excellence is integrity, innovation, and management discipline.

- Establish and maintain high bond ratings.
- Develop capital and funding plans for critical infrastructure/replacement/maintenance.
- Provide accurate and reliable revenue and expenditure forecasts and maintain budget practices that ensure sustainability and continuity of programs and services.
- Maintain a transparent financial environment free of fraud, waste and abuse.

Performance Measures and Standards



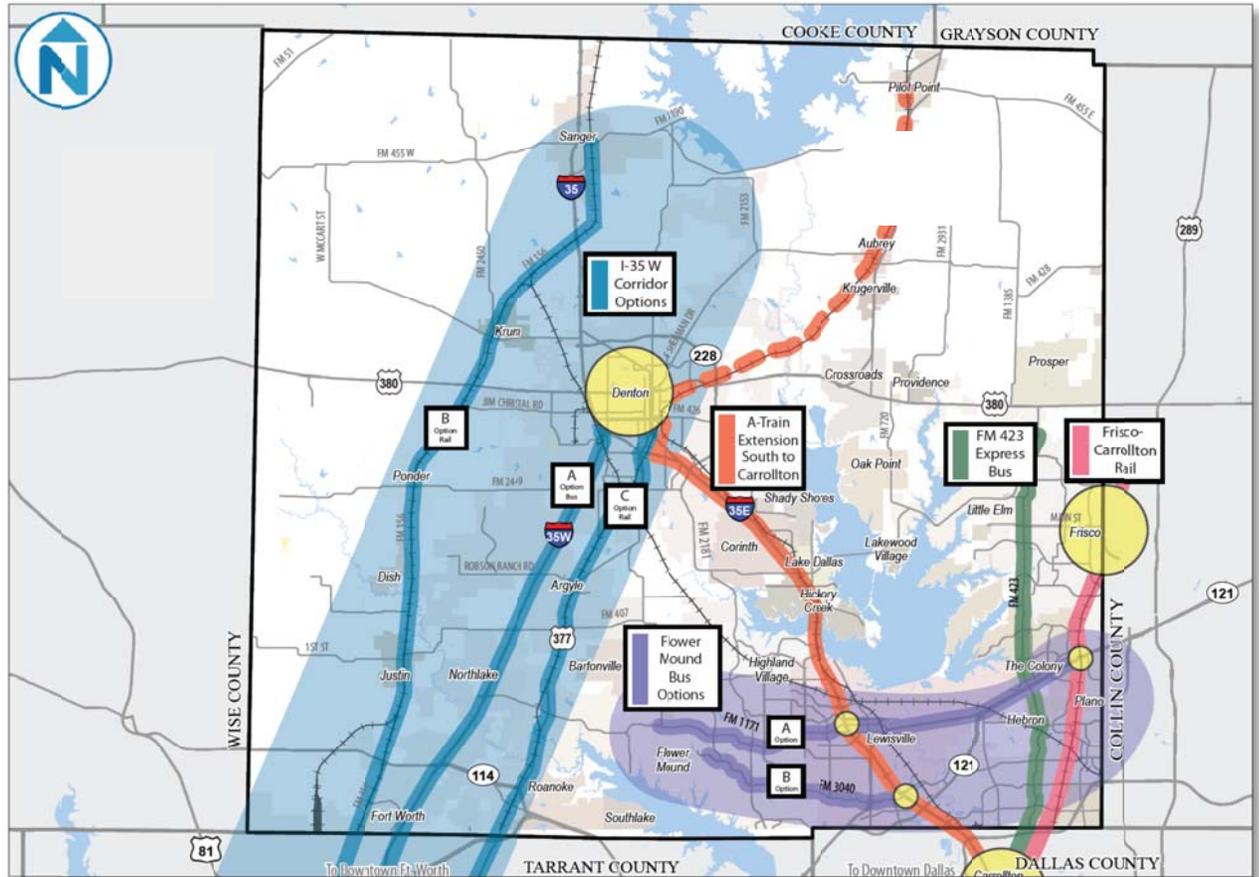
UNT services have some of the highest productivity (passengers per hour) of any of DCTA's routes.

Source: Nelson\Nygaard Associates

To achieve the goals, it is important not only to define service measures and standards, but also to adopt them as a tool for measuring the agency's successes at achieving its standards. Under a proposed route classification system for DCTA, specific standards are recommended for Regional Commuter Rail Services, Regional Express Bus Services, Regional Arterial Routes, Urban Area Trunk Routes, and Community Circulators. Service quality and reliability benchmarks for DCTA are identified, along with service design standards to guide the expansion of service to new areas and potential markets. Access paratransit performance measures are also proposed for careful monitoring.

SERVICE RECOMMENDATIONS

Long Range Regional Transit Corridors



Based on this analysis, five general corridors are identified for service in this plan. It should be noted that only one of the corridors, Frisco-Carrollton, is likely to surpass the level of ridership that the new NCTCOG model projects for 2035 A-train service (A-train is projected at 6,900 daily riders), but each of these five shows signs that service development would achieve transit-supportive ridership levels. These were defined based on a combination of performance estimates, ability to address agency goals and objectives (particularly to maximize existing investments), and a series of other criteria. The actions for DCTA are as follows:

- **Continue to build on DCTA's investment in A-train through a line extension to Downtown Carrollton and increases to service frequency and hours.** With the continued maturation of service, it will be important not only to provide more options to riders with improved headways, but DCTA will also need to expand service hours beginning with the addition of mid-day train service.
- **Expand Regional Bus Service in South Denton County, feeding A-train Service.** With a stated goal of bringing additional member cities into DCTA, service along FM 1171 or FM 3040 would offer new regional arterial routes that would serve Flower Mound.
- **Provide a direct link between Denton and Fort Worth.** Nearly 1,400 daily riders are projected on a freeway express bus along I-35W. Express bus service is recommended as the

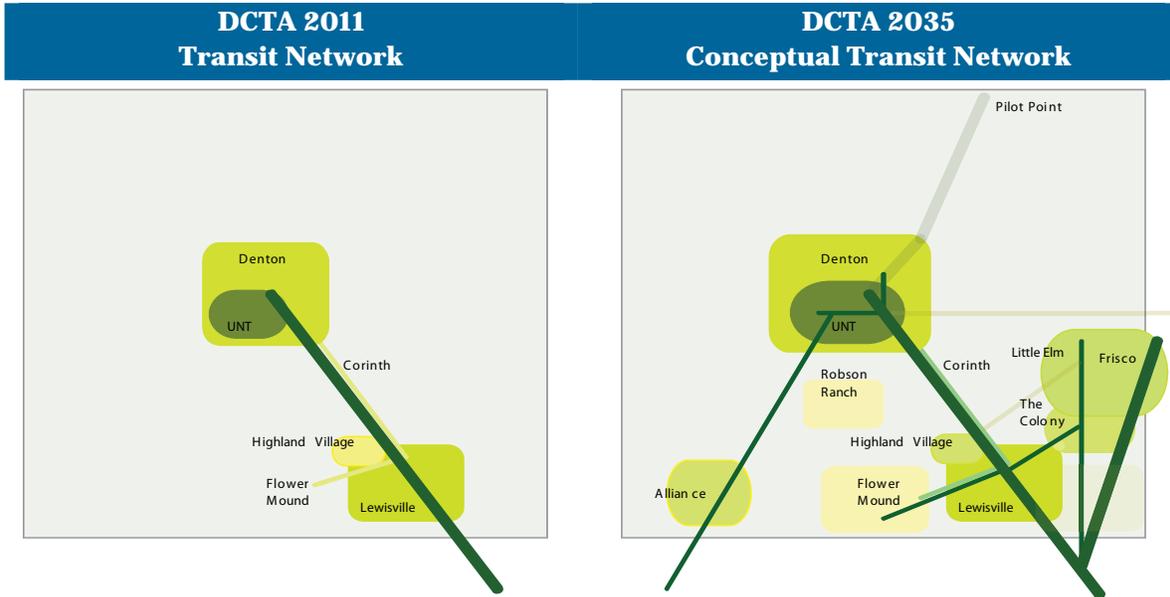
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most cost-effective option in the I-35W corridor, and would allow DCTA to (1) develop and test joint operating agreements with The T and (2) confirm ridership levels/build demand for rail service. Two existing rail lines could be used for commuter rail services: the UP Railroad corridor from Denton to the Fort Worth Intermodal Center, which has the highest potential for ridership (3,550 daily riders for 2035) and the BNSF Corridor, between Sanger and Fort Worth (1,940 daily riders) which remains somewhat outside of the key future population growth areas. Alternatively, a new rail line could be constructed in this corridor if commuter bus ridership is strong and if land use policies were modified to encourage dense housing and employment development.

- Implement multijurisdictional regional rail service.** The rail corridor from North Frisco to the Downtown Carrollton Station (at Belt Line Road) has a projected 12,000 daily riders and could be extended to achieve greater utility. This line represents a link that has been identified and previously studied and is projected to yield the highest ridership among the various alternatives evaluated.
- Serve East County residents along FM 423.** The highest ridership regional arterial bus corridor would serve residents of Little Elm, Frisco, and The Colony, and has a projected 2,500 daily riders. This route would provide a logical initial bus service to test the potential viability of the recommended Frisco-Carrollton BNSF line commuter rail service.

If the recommended service investments are implemented, DCTA's future network is anticipated to reflect the areas of greatest demand, linking Denton County's most populous communities.



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A summary of basic performance characteristics for these corridors is shown in the following table:

Evaluation of Corridors Summary

Corridor	Description	Mode	2035 Performance		2035 Costs		2035 Total Daily Boardings	Carry Forward?
			Operating Cost per Passenger	Passengers per Hour	Capital Investment	Annual Operating Cost		
A-train	A. A-train Denton-Downtown Carrollton	Rail	\$5.60 ▲	164 ▲	\$39,119,700 ◆	\$9,758,800 ◆	6,900 ▲	YES ▲
	B. A-train extension to Pilot Point		\$6.50 ▲	140 ▲	\$331,569,800 ▼	\$14,638,300 ▼	8,800 ▲	YES ▲
	C. A-train extension to Sanger and County Line		\$7.90 ▲	116 ▲	\$385,499,800 ▼	\$14,638,300 ▼	7,300 ▲	NO ▼
South Denton County /Flower Mound	A. Bridlewood -The Colony via FM 1171	Arterial Limited-Stop Bus	\$5.00 ▲	20 ◆	\$3,603,000 ▲	\$1,052,300 ▲	800 ▲	YES ▲
	B. Flower Mound-Hebron A-Train via FM 3040	Bus	\$3.30 ▲	29 ▲	\$3,845,300 ▲	\$862,700 ▲	1,000 ▲	YES ▲
I-35W Corridor	A. Denton to Downtown Fort Worth via I-35W	Freeway Express Bus	\$3.90 ▲	24 ▲	\$4,529,300 ▲	\$1,361,300 ◆	1,400 ▲	YES ▲
	B. Sanger to Downtown Fort Worth via BNSF Rail	Rail	\$23.70 ◆	38 ▼	\$712,095,700 ▼	\$11,710,600 ▼	1,900 ▲	NO ▼
	C. Denton to Downtown Fort Worth via UP Rail	Rail	\$10.20 ▲	89 ▲	\$540,876,700 ▼	\$9,270,900 ◆	3,500 ▲	YES ▲
Frisco-Carrollton	North Frisco to Downtown Carrollton	Rail	\$1.20 ▲	752 ▲	\$377,662,500 ▼	\$3,717,700 ▲	12,000 ▲	YES ▲
FM 423	Little Elm to Downtown Carrollton via FM 42	Arterial Limited-Stop Bus	\$1.80 ▲	52 ▲	\$3,604,200 ▲	\$1,161,000 ▲	2,500 ▲	YES ▲

Legend: ▲ Most Positive Outcome ▲ Somewhat Positive Outcome ◆ Fair/Neither Good nor Bad
▼ Somewhat Negative Outcome ▼ Most Negative Outcome

Feeder Bus Services in Support of Long Range Corridors

If implemented, the North Frisco to Carrollton rail corridor would feature four stops in or near Denton County: Frisco Main Street Station, Texas SH 121 Station (Plano/The Colony), Plano Parkway Station and George Bush Turnpike Station (Carrollton). Local transit service is not currently provided in the northern part of the corridor, while some DART service is provided in the southern part of the corridor (in Carrollton and Plano south of Highway 121). Potential new feeder service for stations along the corridor could be implemented:

- Two feeder bus routes serving Main Street Station operating in Frisco
- A feeder route connecting Main Street Station with West Frisco and Little Elm
- A feeder route operating from SH 121 Station and serving The Colony

- A feeder route operating between Windhaven Parkway Station and SH 121 Station, serving Southwest Plano

In addition, the extension of several existing DART routes may be considered, including Routes 452, 347, 534, 531, and 333.

In support of services in the I-35W corridor, feeder bus service is recommended to serve the major employers in the Alliance area. Services should provide access in Roanoke, along key roads and to Alliance Airport.

Service Improvement and Expansion Options

The long range service planning process included the collection of route-level ridership data, such as passenger boardings and alightings by stop. This data has been used by DCTA as it continues to modify local services to respond to changing conditions, and will provide useful information for future short-term service planning efforts conducted by DCTA. Data collected was also reviewed to develop general near-term service guidelines and considerations, as well as opportunities to support long-term service recommendations.

While DCTA operates a range of transit services, in recent years the agency has invested heavily in the A-train, which could be considered the “spine” of DCTA’s service network. Because of the investment in A-train, near-term service improvement and expansion options focus on preserving and maximizing DCTA’s existing investment. DCTA has several opportunities to strategically develop and enhance local transit services as a way of laying the foundation for upgrades to the regional transit network. Bolstering service in Denton, by improving headways, and defining a strategy to improve interconnectivity between local buses and A-train are priorities for the agency in the short-term. Lewisville and Highland Village will likely see improvements on local bus services to better align with the A-train, but major service changes in these cities are not recommended in the short term.

Near-Term Service Improvement Options

Denton. As the largest city in Denton County, Denton not only features most of DCTA’s transit service, but is also the community where transit has the greatest potential to succeed. Now that the A-train is operational and terminates at the Downtown Denton Transit Center, this has become the primary transfer location for all Denton Connect routes. Service alternatives and recommendations include the following:

- **Better schedule integration between Connect and A-train.** It is recommended in the short-term that weekday service hours on Connect should better match the service hours on A-train.
- **The development of high-frequency transit service spines in Denton.** While Connect provides good local coverage throughout Denton, one of the goals of the service should also be to provide “first mile” and “last mile” connections for regional commuters on A-train.
- **Additional service frequency.** Many of the corridors in Denton justify higher service frequencies, or at least as frequent as service being provided in Lewisville (which is approximately every 35 minutes during the peak). As such, it is recommended that in the near-term, DCTA consider improving service frequencies on all Connect routes.
- **Service along Airport Road.** A new route to the Denton Municipal Airport area is proposed within the short-term.

Highland Village and Lewisville. Performance on Connect RSVP should be monitored closely. Connect service in Lewisville is provided with three routes (21, 22 and 23) operating approximately every 35 minutes during the peak periods on weekdays and hourly on Saturday. In May 2011, Lewisville Connect had roughly 7,000 passenger boardings, which is indicative of the continued ridership increases experienced in Lewisville.

While this study has indicated that DCTA's services in Lewisville provide adequate coverage in the near-term, there is opportunity to provide more consistent frequencies through the day on Connect. Since most the services in Lewisville and Highland Village are less mature than Denton, the services should be monitored more closely.

NCTC Connections. Potential changes to the NCTC Shuttle could be considered:

- **Extend NCTC Shuttle service in Denton.** While service to the Med Park A-train station offers connections to Connect Route 2 and the Colorado Express UNT Shuttle, service to the two main destinations in Denton require a transfer. Service can be extended to the UNT campus, which would also provide UNT students living in Lewisville or Flower Mound with a single-seat ride. Another option would be to extend service to the Downtown Denton Transit Center where connections can be made to all Denton Connect routes rather than Route 2 alone.
- **Expansion of service hours.** While the NCTC Shuttle offers seven round trips daily, service headways are about every 90 minutes. Adding one additional bus to this route would offer service about every 45 minutes, which would offer students significantly more travel choices.

Demand Response. Resources committed to Access in relation to those designated for local Connect fixed-route service is a higher proportion than the majority of DCTA's peers. DCTA should consider modifications to its Access policies and procedures to realize greater operating efficiencies and to reserve use of the service for those unable to use the fixed-route services due to a certified disability. This would result in a smaller pool of users and allow DCTA to redirect resources toward improving general public services.

Investments in technology. It is recommended that DCTA enhance transit traveler information. This should be done by updating the agency's Google Transit feed, participating in the Regional 511 effort and looking at opportunities to provide real-time information to users from the internet, mobile devices, or telephones. Service providers such as NextBus and TransLoc actively manage the reporting of an agency's Automated Vehicle Locator (AVL) data and present it to passengers via the Web or mobile phone applications. DCTA should also pursue efforts to promote transit via regional traffic and transit information websites.

DCTA can also enhance operations data reporting and system management by getting route segment-level schedule adherence reports on a regular basis. Transit vehicle tracking allows a transit agency to monitor current transit vehicle location using an AVL system. DCTA could consider the development of standard reports that analyze AVL and farebox data for planning purposes. DCTA will need to integrate fareboxes with AVL equipment allowing tracking of boarding activity by stop location and the ability to offer transfers based on the characteristics of the route where the ride was initiated. A public announcement system can also be integrated with an AVL system, enabling stop announcements in accordance with ADA requirements, and allowing DCTA staff to place important messages regarding service modifications, public information meetings, promotions, etc.

Longer-Term Service Expansion Options

Longer term, with the introduction of new regional services, DCTA must work to support those services by developing feeder routes and introducing technologies that will make it easier for riders to use and pay for transit, while making it easier for DCTA to plan for service changes and monitor the use of transit. Opportunities for closer joint service planning at the local level — particularly with DART, which has some services in southeast Denton County — will result in overall improvements to the county’s transit network. DART has begun providing services under contract to non-member cities, and could potentially operate more local services in the vicinity, including in The Colony, Plano, or further to the north in Frisco. It is not known whether these operations may be more cost-effective than DCTA services, but they may provide an opportunity for Denton County non-member cities to purchase services and test the viability of transit.

Other communities in Denton County that become member cities would be eligible to receive service in return for their investment, based on precedents in the existing member cities. These communities could be served by general public demand response service, under contract with a taxi or local service provider, or deviations from intercity fixed route services, depending on where services are carried forward.

Supporting Transit through Investments in Multimodal Design

Some of the issues that arose in the development of the plan include a lack of sidewalks in many portions of Denton County, limited amenities for transit users, and a need for bicycle connectivity and amenities. As a long-range plan, rural, suburban, and small town urban design guidelines are provided to maximize access to transit, provide safety for transit users, and promote multimodalism in general. DCTA is encouraged to work more closely with local jurisdictions and Denton County to address the following:

- Making transit-friendly communities
- Developing street patterns that work for transit
- Designing streets for multimodal transportation
- Improving transit facilities for Denton County

IMPLEMENTATION

As a roadmap for future investments, implementation of the plan requires a wide range of activities. A schedule for the phased implementation of the recommendations assumes some minor service improvements to support the investment in A-train over the next five years, with the introduction of new regional services spaced over the 25-year planning horizon. Assuming the availability of funds for both operating and capital needs within five years, the following are proposed:

- Additional service hours on Denton Connect
- Better weekend schedule integration of Connect and A-train



Implementation of recommended services will require refinement, public involvement and marketing.

Source: Nelson\Nygaard Associates

- High-frequency spines in Denton
- A route serving Airport Road in Denton
- Improved headways and a longer service span on A-train
- Improved efficiencies with demand response services

Other corridors, with their approximate proposed implementation years are as follows:

- A-Train Denton Terminus with Extension South to Downtown Carrollton - 2016
- Bridlewood – East Lewisville/The Colony bus service via FM 1171 - 2016
- Denton to Downtown Fort Worth bus service via I-35W - peak only, 2018; all day, 2026
- FM 423 bus service - peak only directional, 2019
- North Frisco to Carrollton Commuter Rail - 2031

The years assigned to each of these corridors are based on funding assumptions. All of the corridors should be monitored with regard to ridership potential, opportunities for joint partnerships, and funding potential, which may vary from the assumptions in this plan. Because all of the recommendations in this plan would require increased funding, certain "game changers" should be noted, which could result in a shift with regard to which services are implemented when, including much earlier implementation of service in some corridors or service levels lower than those recommended in other corridors. These include the following:

- Unanticipated changes to bus ridership/demographics in Denton County
- Reductions in funding for transit due to economic circumstances or other unforeseen cutbacks
- Significant increases in available funding
- New fast-track developments in areas not currently programmed for development
- Significant growth in the Alliance area
- Changes in development in downtown Denton (and possibly in Lewisville and Frisco)

Other major considerations for implementation of the recommended services and corridors in this plan include a refinement and development of the specific operating characteristics for each corridor; implementation and monitoring; developing and improving bus stops and facilities; focusing on marketing the proposed new services; and defining a fare program appropriate for the new services.

FINANCIAL STRATEGY

DCTA has enjoyed considerable success in securing federal, state and regional funds for capital investments and should continue to aggressively pursue this strategy. However, without increasing dedicated local funding by collecting additional sales tax or other revenues from new member cities or private partners, DCTA will be unable to implement all of the services recommended in the Long Range Service Plan. Consequently, political and financial support from the local communities that directly benefit from new transit services will be crucial to successful implementation. Key elements of the financial strategy and assumptions are as follows:

- Operating expenses for existing service range from \$21.1 million in 2012 to \$41.6 million in 2035 and there are adequate revenues to support service.

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- Capital outlays needed to support existing service primarily consist of replacing vehicles that have reached the end of their useful life. Although no capital revenues have been committed beyond 2014, DCTA should be able to continue using FTA Section 5307 funds for fleet replacement as well as discretionary Section 5309 funds.
- DCTA will need to commit dedicated capital funds to a new bus operations and maintenance facility, as well as for positive train control (PTC) for A-train.
- Projected operating expenses for phased implementation of recommended services start at \$100,300 in 2013 and grow to \$38 million in 2035. Due to the expected modest increase in service between 2012 and 2016, existing revenues may be able to fund the increase in operating expenses. However, between 2016 and 2035, the projected annual funding requirement (or deficit) to pay for the projected operating expenses ranges from nearly \$6 million to almost \$17 million. Without new funding to support operations or make capital investments, DCTA will be unable to introduce new or enhanced services.
- The most promising funding opportunity is additional sales tax or other revenues from new DCTA member cities. Specifically, Argyle, Flower Mound, Frisco, Little Elm, Lake Dallas, Corinth, The Colony and Northlake will all benefit from one or more of the new long-range corridor services, and may be willing to transfer some of their local revenues to DCTA to help pay for these new services.
- Once more detailed implementation plans for new services are developed; DCTA will be able to finalize project-specific funding strategies that combine new sales tax revenues with other funding sources.