Transit-Oriented Development (TOD) Guidelines

Promoting TOD Around DART Transit Facilities

Dallas Area Rapid Transit
Dallas, Texas

August 2008
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Transit-Oriented Development Guidelines

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DART TOD Information Sources

General Station Area Development Information
www.dart.org/economicdevelopment
(214) 749-2520

DART Facility Design
DART Design Criteria Manual, Volume 1: Facilities Design
New Directions for DART: Transit Design Policy Manual
Available through DART Engineering Document Control, (214) 749-2793

DART’s Art and Design Program
(214) 749-2915
I. Overview

Through its years of creating and managing successful light rail systems in its 13 member cities, DART has learned valuable lessons about what is needed for successful transit-oriented development. This document, the Transit-Oriented Development (TOD) Guidelines, is the culmination of those lessons learned over the years. The Guidelines were designed as an informational handbook to assist the general public and the development community in understanding DART’s approach to TOD and transit facility design. It is intended to help developers succeed in their TOD projects, so please take advantage of the information included here.

DART aims to help create communities where residents can live, work, and play without relying on an automobile. As part of that goal, DART encourages the creation of transit facilities that are accessible to transit customers and provide community development potential to the area.

Opened in 1996, the DART light rail system now encompasses 45 miles of transit and 35 light rail transit (LRT) stations. Several TOD projects have been constructed locally and continue to increase in property value over time. Local TODs are successful in achieving the following:

- Embodying the principles of good transit-oriented design
- Complementing the station area and the surrounding neighborhood
- Enriching the transit experience for DART riders and the pedestrian experience of those who visit or live in the area
- Adding to the municipal tax base

As development interest in TOD increases over time, existing rail corridors and future rail expansion offer exciting new opportunities for a variety of TOD projects. By 2018, DART will more than double the light rail network to 93 miles, with even more expansion identified in its 2030 Transit System Plan.

This handbook is a general guide to help the public envision the development opportunities within DART station areas. Those interested in developing on or adjacent to DART-owned properties are encouraged to speak with DART in more detail about the opportunities, processes, and procedures specific to their project. General development information is available via DART Economic Development and Planning at www.dart.org/economicdevelopment or by calling (214) 749-2520.
II. Station Area Development Potential

Transit station areas are increasingly being seen as desirable places for development. Transit-oriented development, or TOD, is a development style that promotes mixed-use development within a 5- to 10-minute walk of a transit station. Before delving into the details of TOD, a quick look at the potential of station area development versus suburban-style development highlights the following:

- **Place-making.** TOD creates a sense of community and of place, a destination that people want to return to time and again.

- **Market Capture.** Increasingly, people want more housing choices and more transportation choices. Skyrocketing fuel prices make suburban commutes less attractive than ever. Further, a housing market shift toward convenience, affordability, and activity – combined with shifting demographics – reinforces the attractiveness of TOD. In a 2003 study by the organization Reconnecting America, Dallas was named tenth among U.S. cities with the highest potential demand for TOD housing. The study found that by 2030, there could be a TOD housing demand of 270,676 households, or a percentage increase of 483% from 2000.

- **Property values.** In 2007, the Urban Land Institute described TOD as an “emerging trend” in real estate and a “best bet for investors” for the third consecutive year. In the North Texas region, TODs are proven as a solid investment. A Fall 2007 study commissioned by DART and produced by the University of North Texas attributed $4.26 billion in development generated by TOD around DART projects since 1999. When comparing TOD to non-TODs, the UNT study showed that transit-oriented residential development had 39% greater property values than non-TOD residential development, and that transit-oriented office development had 53% greater property values than office development outside of transit station areas.


$4.26 billion in development generated locally by DART TOD through 2007

- University of North Texas Study, Clower, Weinstein, and Seman
- **Density.** Transit station areas offer a concentration of people, businesses, and activity that translate into high numbers of residents and customers for development sites. Station areas also have a much higher capacity for density than other non-core developments, offering the biggest potential for growth.

- **Parking reductions.** Since many customers arrive at station-area developments via transit rather than cars, parking needs for station area development are much lower than for suburban-style development. Municipal parking standards tend to be significantly reduced within proximity of station areas, and shared parking is the rule instead of the exception. For customers that do travel by car, transit-oriented development offers a “park once” experience for visitors, where it's possible to park in one location at the beginning of an outing and enjoy local offerings on foot.

- **Sustainability.** Without auto-related pollution, station areas enjoy cleaner air quality on average than car-congested areas. TODs also represent a more efficient use of land, energy, and resources than suburban greenfield development, and help conserve open space and gas by concentrating development around transit.

- **Stability.** Since transit facilities are a permanent fixture, developing around transit stations has the security of stability, unlike auto-dependent developments whose location could fall out of favor with consumers over time.
III. Transit-Oriented Development

Transit-oriented development is defined as a walkable, densely-developed, horizontal and vertical mix of residential space, commercial activity, entertainment facilities, and public open spaces within a 5- to 10-minute walk of public transit. Transit use connects the development to other places, thereby reducing the area’s dependency on automobiles.

DART’s role in transit-oriented development is laid out explicitly in the mission statement: “To build, establish and operate a safe, efficient, and effective transportation system that, within the DART Service Area, provides mobility, improves the quality of life, and stimulates economic development through the implementation of the DART Service Plan.”

To date, there are four transit-oriented developments along the DART rail system: South Side at Lamar (Cedars Station); Mockingbird Station (Mockingbird Station); Galatyn Park (Galatyn Park); and East Side Village Phases I and II (Downtown Plano). These developments are examples of how projects can blend with existing neighborhoods, create a community, and be an added value to transit riders. As of this writing, there are more TOD projects in the conceptual or construction stages along DART’s existing and future light rail corridors.

Some of the basic components of TOD are broken down with regard to station area development in Section V.

For more information on TOD, see:
- Reconnecting America’s Center for Transit-Oriented Development at www.reconnectingamerica.org
- The Urban Land Institute at www.uli.org

A closer look at two local TOD success stories follow.
DART Transit-Oriented Development Showcase

Mockingbird Station

Although Mockingbird Station was the first TOD project in the state of Texas, its retail success, innovative design, and seamless integration with transit has made it a nationwide model for TOD.

Opened in July 2001 and privately planned and developed for $105 million by UC Urban (now Hughes Development, LP), Mockingbird was conceived as a 10-acre urban village surrounding a DART station. Two existing structures – an historic Western Union telephone assembly building and an office building – provided the base of the project. Architect RTKL Associates, Inc. envisioned a modern spin on historic train stations using cutting-edge materials.

The result is a true urban destination that combines one of Dallas’ most successful shopping developments with one of DART’s busiest rail stations, with more development planned for future phases. Located four miles north of downtown Dallas and across US 75 from Southern Methodist University, Mockingbird Station’s cutting-edge retail mix and user-friendly design helped ensure the project’s success.

Features of the Mockingbird Station include:

- 600,000 total square feet of development
- 216 loft apartments
- The Angelika, an 8-screen film center and café
- More than 90 shops and restaurants, encompassing 220,000 square feet of retail, and an additional 140,000 square feet of office space
- Direct platform access to DART trains
- Parking for 1,580 cars, most of which is out of sight and out of mind in an underground garage that’s wrapped in retail and integrated into the development.
- Additional surface parking behind the DART station for commuters and shoppers alike

A planned second phase of Mockingbird Station includes 23,000 square feet of additional retail space. The station will also be within walking distance of the future George W. Bush Presidential Library.

http://www.mockingbirdstation.com/
DART Transit-Oriented Development Showcase
Downtown Plano

The City of Plano developed its showcase TOD a full year before the “T” in TOD – the DART Red Line – came to town.

When the Downtown Plano Station opened in 2003, Plano had already invested $800,000 in public improvements at the station area and tapped into a variety of financing mechanisms – including public-private partnerships, land banking, tax increment financing, and empowerment zones – to build Eastside Village. By issuing a Request for Qualifications (RFQ) for a TOD years before transit would arrive, Plano was able to comprehensively plan the resurgence of its historic downtown, which was centered just a block away from the transit station. Developer Robert Shaw of RTKL Associates, Inc. helped transform a largely vacant tract in the center of town to an attractive, red brick, mixed-use village directly fronting the DART station.

Features of Eastside Village (Phase I) in Downtown Plano:
- $17.7 million development
- High-density, mixed-use, 3.6-acre development of 245,000 square feet
- 234 apartments
- 15,000 square feet of ground-floor retail space
- The 3- and 4-story buildings wrap around three sides of a 5-story parking structure

TOD in downtown Plano has dramatically revitalized the area. A once-quiet downtown that was empty after 5:00 p.m., downtown Plano now boasts plentiful shopping, dining, entertainment, downtown residents, and busy sidewalks.

Today, with the addition of Eastside Village (Phase II) and new development, downtown Plano now features:
- 500 residential units and 40,000 square feet of retail and commercial space in its two projects
- An additional 500,000 square feet of private development currently under construction, which will add 450 urban apartments and 40,000 square feet of non-residential development to downtown's compact 80 acres
- A resurgence in downtown historic architecture and public art

http://www.visitdowntownplano.com/
IV. Station Area Types

DART contains two primary station environment types in its 45-mile system: Urban infill station environments and suburban station environments. The two environment types and their development specifications are discussed in this section.

Urban Infill Station Environment

Urban infill stations in the DART system typically represent stations in or near the Central Business District that offer opportunities for redevelopment.

Urban infill station environments are characterized by:
- High density (a minimum of 1.5:1 floor area ratio or 35 dwelling units per acre)
- Mixed use (commercial, office, retail, housing, hotel, institutional/medical, and civic uses, including traditional city centers)
- Distances are short (within 1/4 or 1/2 mile) compared with a similar number of possible destinations in the suburbs
- Typically served by a grid of streets with similar sized blocks for development
- Circulation system with short block sizes and continuous sidewalks favors pedestrians
- Downtown stations may be at a convergence of multiple transit corridors, so passenger transfer is a major activity
- Development opportunities are typically infill sites among existing uses or redevelopment of larger sites

Above: Pearl Street Station, Dallas
Left: Union Station Aerial, Dallas
Urban Infill Station locations will typically feature:
- At-grade, below grade, open-cut or aerial platforms
- On-street activities in mixed-use district
- Major public attractor (sports venue, convention center, public facilities, hotels, etc.)
- Major intermodal station (a stand-alone station building or historic terminal)
- Transit center (off-street bus and light rail station)
- No surface parking
- Urban development

Typical Urban Infill Station alignment configurations are:
- Street Running: in an exclusive side lane; not mixed with traffic; tracks in paving
- Street Running: in a median on a wider two-way street with stations at far-side or near-side of intersections; tracks may be in an exclusive zone
- Exclusive Right-of-way: at an aerial station
- Exclusive Right-of-way: subterranean

- Open-cut at Mockingbird Station in mixed-use development, Dallas
- Passenger boarding at Akard Station, Dallas
- St. Paul Station, Dallas
Suburban Station Environment

Suburban stations in the DART system typically include stations outside of the Central Business District.

Suburban station environments are characterized by the following:

- Development density can vary greatly, but is generally moderate to low with a low mix of uses.
- Located at or near major suburban activity centers such as an office complex or a regional retail center.
- Typically, buildings are spread apart, and are served by surface parking, large arterial roads and freeways in addition to transit.
- Given the nature of the suburban environment, there is typically more flexibility to design and assemble larger parcels of land.
- The frequency of connected, local streets is typically inconsistent or may be completely lacking.
- Pedestrian access to stations is usually weak.
- Development opportunities include infill, redevelopment or new (greenfield) sites, or brownfield sites.
- Parking consists of surface lots or structured parking shared by uses.

Suburban Station locations will typically feature:

- At-grade or above-grade on an aerial structure.
- Stations integrated into a plaza, a semi-enclosed galleria space or a mezzanine-level lobby with air rights in building space above.
- Business campus.
- Institutional campus (government offices, college, medical center)
- Major public attractor (sports venue, amusement park, conference center, etc.)
- Planned, mixed-use activity center (urban village)
- Transit Center (LRT station with bus transfer, kiss and-ride, park-and-ride).

Typical Suburban Station alignment configurations are:
- Exclusive right-of-way: in an original freight corridor
- Exclusive right-of-way: adjacent to a freeway or major street
- Exclusive right-of-way: in a tunnel or trench crossing a major highway or freight rail tracks
- Exclusive right-of-way: on an elevated viaduct structure crossing a major highway or freight rail tracks
- Street running: in a side lane; not mixed with traffic; tracks in paving; stations at far-side or near-side of intersections

Light Rail and Bus

The DART system consists of light rail and bus vehicles, as well as other vehicles for commuter rail and flexible route services. The specifications of light rail vehicles and the standard DART bus vehicle as well as information on their corresponding facilities are discussed in VI. Typical Transit Facilities.
V. Elements of Station Area TOD

The primary components of TOD affect DART station areas in important ways. Among other things, developers must consider:

- What mix of uses is right for this site?
- How does this site connect to surrounding sites?
- How densely can the site be developed?
- What considerations should be given to civic space or public art?
- What type of building form would be best?
- How well can pedestrians flow through the site?

The following components of TOD are addressed here in regard to DART station areas:

- Land Use
- Intensity of Development
- Built Form
- Civic Space and Public Art
- Circulation
- Landscape
- Sustainable Development

The following TOD guidelines should help provide a framework for future station area development, but should not be considered binding or be used in lieu of municipal regulations in the station area.

General Station Area Development Goals

- Adjust the mix and intensity of station area development to achieve complementary adjacencies and transitions between existing and proposed uses. (e.g. retail to housing, retail to office, higher density to lower density, etc.)

- Promote a long-term vision and plans that create a community around and adjacent to DART facilities. Create development on DART owned property that not only garners ridership but creates a vital community.

- Address nuisances associated
with new station area development - such as noise, traffic congestion, interference with views, etc. - by appropriate station area design, including setbacks, separation, buffers, screening, and traffic calming. Solutions will differ for existing and new neighborhoods.

- Accommodate existing viable businesses in redevelopment plans at station areas where these businesses complement other planned uses.

- Protect unique and sensitive natural environments in new station area site designs.

- Protect valued views in new station area development plans.

### Land Use

**Land Use Goals**

- Station area development will comply with local land use plans and/or TOD zoning if available to ensure compatibility with surrounding neighborhoods. Where specific plans do not exist, developers should work with local communities and DART to develop station area plans.

- LRT station areas will provide a range of commercial office, retail, and residential uses suited to the needs of the surrounding neighborhoods and transit passengers. The diversity and scale of uses will vary by market conditions, parcel availability, local station area plans, and the level of activity at the station (high volume vs. moderate volume stations).
Discourage uses in station areas that result in low density populations, generate significant non-work car trips, or are incompatible with residential uses. Examples include stand-alone fast food restaurants, drive-through or bulk product discount retailers oriented to driving customers, automobile sales and repair services, industrial manufacturing, truck stops, 24-hour entertainment businesses, and others.

Station areas will mix urban uses within walking distance of each other - no greater than ¼ mile. Non-conforming uses will be phased out over time.

Land Use Guidelines

Promote land uses in station areas that serve relatively high-density populations, such as commercial office, retail, housing, higher education, medical complex, major cultural facility, or sports venue.

Encourage a mix of appropriate uses so that workers, residents and visitors may take care of other business or personal needs within walking distance of the station, thereby reducing individual trips. Examples include dry cleaning, walk-in banking, sit-down restaurants, exercise clubs, beauty salons, pharmacies, consulting services, etc.

Where a single, large existing use dominates a station area - such as a hospital or university - encourage the addition of convenience retail and support commercial and residential uses to round out the general mix of uses and to reduce automobile trips. As transit-oriented development becomes more established, the market range of viable uses in station areas will expand.
Intensity of Development

Intensity of Development Goals

- Station areas will achieve higher intensity of uses to support increasing transit use and the significant investment in each LRT station.

- Minimum floor area ratios and minimum dwelling units per acre will be required, based on local zoning requirements.

- Complementary uses will achieve higher utilization of land by reduced/shared parking and service functions wherever possible.

Intensity of Development Guidelines

- For commercial, retail, and institutional development, provide a minimum development density of 0.8 to 1.0 floor area ratio average over the designated station area at final build-out. This allows flexibility in locating greater and lesser density at different locations within the station area.

- For residential development, provide a minimum of 24 dwelling units per acre average over the designated station area at final build-out. This allows greater density near the station and less density at the periphery, near existing neighborhoods.

- Provide parking for station area development at a rate commensurate with actual demand. Most commercial parking and some residential parking is over-supplied. Establish minimum and maximum parking requirements for allowed uses per zoning. Evaluate parking policies for station areas in other major communities.

- At the beginning phases of transit-oriented development at stations, allow surface parking at slightly higher ratios, gradually reducing rates to maximum allowances as development intensifies. The ultimate goal is to shift into structured parking in station areas to allow intensive use of land.
• Establish a formula for shared parking between complementary uses that allows a reduction in the aggregate parking requirements. Examples include office and cinema, dinner-only restaurants, and residential, etc.

Built Form

Built Form Goals

• Transit-oriented station areas with mixed uses will incorporate a pedestrian, urban character with street-fronting buildings, frequent local streets, and integrated parking.

• Appropriate transitions from most dense to least dense development will be provided.

• Street-level uses in station areas shall be designed for the benefit of pedestrians.

• Station areas outside downtown should include appropriate open space as a focal point for activity near the station, such as a village square or plaza.

• Parking will be integrated into an appropriate arrangement of transit-oriented, mixed uses, development blocks, and local streets.

Built Form Guidelines

• Use building massing to define the space in streets and intersections. Build up to the property line along at least half of each block face to provide continuity along streets. Corners are particularly important to define with buildings.

• Limit blank walls at street level. Avoid the use of highly reflective glass. Require at least half of ground floor facades in commercial and mixed-use districts to be transparent.

• Vary the character of the walls of multi-story buildings. Differentiate the ground floor retail zone from the middle mass and roof through architectural expression of each, using variations in window scale and frequency, wall setbacks, material changes, and cornice expression.
To ensure full daylight, set back the upper stories of taller buildings adjacent to lower buildings, and along public open spaces.

Relate buildings by their orientation to streets and open spaces. Provide ground floor entrances, lobbies, and active uses facing streets and parks.

Provide clearly visible primary entrances. At buildings facing both a street and open space or parking lot, provide entrances on both sides with through-lobby circulation.

Provide individual entrances to small retail uses from streets, plazas, and open spaces (not exclusively from lobbies).

Orient private and shared residential entrances, porches, balconies and windows towards streets and open spaces.

Provide weather protection with a colonnade, awning or entrance canopy at ground floor level along streets.

Locate primary entrances to ground floor dwelling units or to elevator lobbies directly facing streets.

Locate loading and service entrances away from main entrances, important pedestrian routes and open spaces where feasible.

Limit the number of driveways on each blockface, and locate them away from intersections.

Provide architecture of consistent quality, detail, and permanence in station area development. Respect local historical precedents where station areas involve infill redevelopment. Ensure compatibility in scale, configuration, materials and colors with surrounding development. Strict uniformity with other buildings is not required nor encouraged.
- Use building materials of quality and permanence such as natural stone, brick, precast concrete, and refined exterior metal panels.

- Where station area development involves renovation, encourage projects that improve buildings for full occupancy.

- Design structured parking as a part of major buildings; either below grade, at-grade (behind retail space) or above-grade. Design stand-alone parking garages as neighborhood architecture with appropriate wall materials, window opening scale, proportion and pattern, and active ground floor uses.

- Provide the same scale, transparency and weather protection as required at the ground floor of other buildings. Garages should be good neighbors to office, retail, hotel, entertainment and housing.

**Civic Space and Public Art**

**Civic Space and Public Art Goals**

- Station areas will incorporate civic space in their ultimate plans. The nature of that space will differ with the context of each station area.

- Community themes will be incorporated in station area open space with public art.

- Ensure that DART facilities have furnishings that contribute to the station environment for pedestrians, passengers, and the neighborhood.

**Civic Space and Public Art Guidelines**

- Follow the protocol of the DART Art & Design Program, which works through DART Community Affairs to assemble a team of station area community members, an artistic consultant, a commissioned station artist, and engineers in order to develop the unique identity of each transit facility through artistic expression.
- Provide a hierarchy of civic space in station area plans, including small parks, plazas, pedestrian-emphasized streets, and landscaped boulevards, as appropriate to the urban character of the place.

- Give special design consideration to arrival points within the station area neighborhood or district. Examples include small open spaces at neighborhood entry points from the larger street system and open space related to the Transit Center or Light Rail Station itself.

- Ensure that any public open space is accessible from primary pedestrian routes within the station area. Provide multiple choices of entry to and circulation through any park or plaza.

- Promote an inviting and secure atmosphere in public open space by providing active abutting uses at its perimeter such as small retail shops, restaurants, and personal services. Also ensure good visibility into and from public open space. Avoid blind corners and out of view areas. Accommodate emergency access.

- Ensure adequate solar access to any public open space by the careful massing of buildings.

- Size open space appropriately for the density and scale of surrounding development. An actively used small park is more inviting than an inactively used larger park.

- Design public open space to the level of its anticipated use. A heavily-used open space may require hard surfaces to withstand foot-traffic. A lightly used park may be mostly
landscape surfaces. If a park is used primarily for passive recreation, provide ample seating and differentiation of subspaces for smaller group or individual use.

- Furnish public open space with amenities that invite its continued use. Examples include water features, trees, flowers, trellises, unit pavers, pedestrian lights, benches, trash receptacles, newsstands, etc.

- Various civic spaces and improvements can form a connected system of parks, plazas, front yards and boulevards in station areas. Continuity along street corridors should be provided by unifying design elements such as consistently spaced street trees, pedestrian lights, signage and other furnishings.

- Locate benches at stops serving schools, hospitals, senior centers, rehab centers, medical facilities, etc.

- Explore opportunities for stand-alone and integrated public art in station architecture and landscaping. Where appropriate, express local community themes in station art and design.

Left: Public Art at Illinois Station, Dallas.
Right: Public art that references high-tech manufacturing at the Galatyn Park Station, Richardson
Circulation

Circulation Goals

- Light rail station improvements will be coordinated with local infrastructure improvement projects to ensure that adjacent infrastructure supports and does not hinder station area development.

- Stations and station area streets will provide convenient and safe access for all modes of circulation. Partner with cities and adjacent private land owners to ensure a complete circulation system.

- Pedestrian access is of prime importance in all station area plans.

- Station area streets will form a connected system with multiple access points from the surrounding larger street system.

- Station area streets will be designed with an urban character that complements Built Form and Civic Space guidelines.

- Signage and wayfinding will be employed throughout station areas to encourage safe and efficient pedestrian movement.

*A pedestrian-scaled, local street – Las Colinas, Irving

*Fans taking advantage of pedestrian access to American Airlines Center from Victory Station during special events - Dallas*
Circulation Guidelines

- Provide a hierarchy of streets within the station area including the following:
  - **Local streets** - forming development blocks of approximately 300 feet minimum to 380 feet maximum length; 2-3 travel lanes, two way circulation, parking both sides; 60 feet minimum to 70 feet maximum right-of-way.
  - **Collector and access streets** - at least one within a ¼ mile radius of the station providing continuous access from the nearest major street with feeder bus routes directly to the transit center; 2-3 lanes maximum; boulevard section with a landscaped median keeps the scale appropriate; parking on one side away from station is optional.
  - **Arterial streets** - should not penetrate the interior of a station area; if present, arterial streets should only be at the edge of a station area.

*Left and Below: Diagrams of straight and concentric street grids around transit stations*
- Provide direct bus access from a nearby arterial with feeder bus routes to a transit center on an internal collector access street.

- Accommodate all modes of traffic on station area local and collector streets to ensure all-day activity for the safety of pedestrians. Ensure adequate but not excessive turning space in street layout for buses, trucks, emergency vehicles, and other larger vehicles.

- Provide High Occupancy Vehicle (HOV) access to the transit center directly from freeway HOV lanes where feasible.

- Integrate passive traffic calming devices into the design of station area streets. Examples include: curb extensions at corners, four way stops at unsignalized intersections, on-street parking, slower posted speed limits and other measures.

- Promote alternate mode trips by providing a direct and connected system of bicycle routes to stations from surrounding areas including rails-to-trails, striped lanes, and quiet streets. At stations, provide enclosed, secure bicycle lockers that are available for rent.

- Provide a continuity of design elements - streetlights, trees, furnishings and paving - on station area streets. Make these streets inviting routes for pedestrians.

*Bus/Rail Interface at multi-modal DART stations, Dallas*
- Clearly articulate the four sidewalk use zones in all station area streets:

<table>
<thead>
<tr>
<th>ILLUSTRATION</th>
<th>ZONE TYPE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Curb Zone" /></td>
<td>Curb Zone</td>
<td>A clear zone from the curb face to any vertical object</td>
</tr>
<tr>
<td><img src="image" alt="Furnishings Zone" /></td>
<td>Furnishings Zone</td>
<td>A linear zone that accommodates furnishings, street lights and trees</td>
</tr>
<tr>
<td><img src="image" alt="Through Pedestrian Zone" /></td>
<td>Through Pedestrian Zone</td>
<td>A clear zone separated from traffic by the furnishings and curb zone for the passage of pedestrians</td>
</tr>
<tr>
<td><img src="image" alt="Building Frontage Zone" /></td>
<td>Building Frontage Zone</td>
<td>A linear zone directly abutting buildings that accommodates minor building projections, café seating, window shopping, planter pots, etc.</td>
</tr>
</tbody>
</table>
- Make the pedestrian travel path from building, to sidewalk, to intersection and to transit center platforms, a seamless and Americans with Disabilities Act (ADA)-compliant route for ambulatory and mobility-impaired pedestrians, bicyclists, or those with strollers.

Landscape

Landscape Goals
- Landscaping will be an integral part of station area streets, civic space, and transit center development.
- Landscaping will use durable, native, and non-native materials that require little maintenance.
- Except for special plantings, plant materials will also be drought resistant.
- Landscaping will be supported by operating irrigation systems and a permanent commitment to on-going maintenance so that its contribution to station area environments grows over time.
**Landscape Guidelines**

- Extend continuous tree plantings throughout streets in station areas to mitigate heat island effect during summer months and to provide an attractive and pleasant pedestrian environment. Comply with local ordinances.

- Provide perimeter and internal landscaping at parking lots to mitigate heat island effect. At maturity, the tree canopies should shade most of the parking spaces.

- Select tree species that are approved by local community foresters. Consider tolerance of drought and urban conditions, size, shape, and density or transparency of canopy, surface root habits, evergreen, or fall color as selection criteria.

- Provide seasonal landscape color with flowers in planters and medians where feasible.

**Sustainable Development**

**Sustainable Development Goals**

- Promote sustainable development practices in station areas wherever feasible.

- Consider life-cycle costs as well as initial capital costs when selecting materials and systems.

- Consider energy used in manufacture as well as ongoing energy use when selecting equipment.

- The use of shade, color, materials, and pavings will reflect the environmental context of the station area.

**Sustainable Development Guidelines**

- Landscape to control erosion and reduce heat island effect.

- Make alternative transportation facilities convenient and attractive to use.

- Efficiently site buildings - take advantage of proximity to transit and natural topography; orient to minimize energy consumption due to sun and wind exposure.
VI. Typical TOD Transit Facilities

DART has several types of transit facilities in its system: light rail transit (LRT) facilities, bus facilities, transit centers, passenger transfer locations (PTL), and park-and-rides with bus transfers. For sites that are adjacent to or contain an existing or future DART transit facility, the following goals and guidelines for each facility will help developers understand the requirements specific to each transit type. As with the rest of this handbook, these goals and guidelines should not replace specifications from the DART Engineering Standards, approval from the DART lead architect, or municipal regulations.

### Standard Transit Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRT Station Envelope Length</td>
<td>460 ft</td>
</tr>
<tr>
<td>LRT Station Envelope Width</td>
<td>60 ft</td>
</tr>
<tr>
<td>Envelope height of At-Grade LRT Station</td>
<td>26 ft above top of rail</td>
</tr>
<tr>
<td>Height of Aerial LRT Station</td>
<td>18 ft ground to bottom of structure; 24 ft ground to top of rail; 26 ft top of rail to top of structure, 50 ft ground to top of structure</td>
</tr>
</tbody>
</table>

* Approximate, depending on station and slope of site
* These dimensions do not include bus facilities or parking

### Light Rail Facilities

#### Light Rail Facility Goals

- Promote a region that is transit-oriented and that coordinates light rail with other modes of transit, including pedestrian access routes.

- Promote transportation and land use planning that contributes to an improved quality of life.

- Design a system that is compatible with the communities served.

- Encourage investment in transit-oriented development near transit facilities through direct or indirect incentives, such as lease agreements, public-private development partnerships, and other tools.

New station area housing at Downtown Plano Station, Plano
• Prepare sub-area studies at transit stations in conjunction with local community planning and redevelopment efforts.

• Provide stations at 0.5-mile (urban) to 1.5-mile (suburban) spacing.

Light Rail Facility Guidelines

• Location of LRT stations is a part of the selection and establishment of new light rail corridors. Provide stations where potential transit riders are or will be concentrated, where safe pedestrian access can be accommodated - such as intersections with signalized crossings - and where there is excellent potential for new TOD. This means station sites that have adequate developable property or opportunities for creative infill redevelopment, a local community that values high-quality transit, and a well-conceived system of access roads that will support stations and stations areas.

• Just as transit-oriented development supports ridership and investment in light rail, transit station design can be oriented to and anticipate appropriate station area development, hence, “development-oriented transit”.

• Promote opportunities for integrated station and development design, whether stations are at-grade, in a tunnel, open cut, or on an elevated viaduct. The goal is to create a sense of arrival at the local area, whether that is an office complex, neighborhood, or arena.

• Design transit facilities to accommodate their own functions, yet also to anticipate and integrate with surrounding station area development. Light rail platforms and bus transfer
areas generate significant pedestrian activity. Promote the rail station as the focal point of the surrounding and complementary retail, services, and public open space.

- The hierarchy of station area circulation around LRT facilities is as follows, from highest to moderate priority: light rail, pedestrians, feeder buses, kiss-and-ride autos, vans, shuttle buses, and park-and-ride autos.

- Where feasible, provide direct bus access to the inbound (downtown Dallas-bound) LRT platform (shared between bus and LRT) for transferring passengers.

- Provide convenient but separate access for private shuttles, kiss-and-ride vehicles, taxis, and vans transferring passengers to LRT.

- Park-and-ride parking should be reasonably convenient to the station, but should not preclude immediately adjacent transit-oriented development. Evaluate development rights over park-and-ride facilities with provisions for shared parking.
Access to park-and-ride should be separate from transit center bus and kiss-and-ride access to minimize conflict and delay for buses and other vehicles with transferring passengers.

Provide and link comprehensive pedestrian and bicycle access throughout the rail station and development. Link in a logical manner to pedestrian and bicycle circulation in the surrounding station area. Ensure ADA compliance at all routes from LRT platforms to vehicle areas and station area development.

Since LRT stations represent a high investment in a fixed location and will carry larger volumes of passengers, provide the highest level of passenger amenities, such as safe, weather-protected waiting areas, time and route information, seating, telephones, enhanced materials, finishes, and landscaping.
Side platforms are the most common platform type in the DART system and are preferred for at-grade LRT stations. They contribute to lively sidewalk activity, relate more directly to TOD, and tend to be less expensive to construct than center platforms.

- Single-track, street-running in exclusive right-of-way, integrated with pedestrian activity
- Double track, street-running in exclusive right-of-way, median trackways, side platforms
Center platforms are occasionally preferred for at-grade, median trackways and aerial stations, usually for safety reasons given the additional amount of right-of-way in a center platform. Center platforms are also typical for below-grade and open-cut due to the significant cost of elevators, escalators, and stairs.

Provide supplementary pedestrian and bicycle access from surrounding neighborhoods to stations where opportunities, such as rails-to-trails, present themselves.

Provide three super light rail vehicle (LRV) length platforms at all at-grade and elevated stations.
Above left: DART aerial station, center platform with stairs and elevator
Above right: Typical station elevator, DART Forest Lane Station
There are standard station types in which platform furnishings and system elements are arranged in a logical manner that acknowledges functional requirements of the platform:

- Pedestrian circulation to the platform;
- Weather protection in the form of shelters, windscreens and trees and their relationship to open doors in a stopped train position;
- The co-mingling and circulation of disembarking and embarking passengers;
- Adequate linear and cross-platform circulation in the arrangement of all vertical objects; in particular, ensure comfortable space for all disabled access;
- Desirable locations for ticket sales, validation, route and time display, etc;

Differentiate intermediate and major-capacity LRT rail stations in the scale of shelters, amount of seating and waiting areas, and some amenities.

Set all new platform elevations to the car floor level above top of rail to ensure level boarding anywhere along the platform length. Ensure ADA compliance at all stations.

Below: Train with C-car low-floor insert. These inserts are being added to existing fleet and will be completed by 2010.
- Where feasible, integrate traction electrification system (TES) support with other elements in the platform area. Examples include shelter support structures.

Above left: Canopy-supported electrification system at DART station
Above right: Gull-wing/Ornamental electrification system at DART station

- Where fencing or guard-railing is required at station areas, provide enhanced designs with picket or perforated metal plate.

- Use enhanced materials and patterns for platform paving such as unit pavers or integral color and decorative scoring, to make a significant improvement to the station environment.

Left: Ornamental pedestrian fencing at DART station

The following pages contain diagrams that illustrate typical DART light rail facilities.
SIDE PLATFORM, AT-GRADE
BUS TRANSFER AREA

A. Paving, Tactile Warning Strip
B. Shelter, Single Gull Wing
C. Trees
D. Transit Lighting
E. Pedestrian Track Crossing
F. Ticket Vending/Validation
G. Trackway Fence
H. Guardrail
A. Paving, Tactile Warning Strip
B. Triple Gull-Wing Canopy
C. Transit Lighting
D. Ticket Vending/Validation
E. Guardrail
A. Paving, Tactile Warning Strip
B. Shelter Double Gull Wing
C. Trees
D. Transit Lighting
E. Pedestrian Track Crossing
F. Ticket Vending/Validation
G. Planters
H. Guardrail
A. Paving, Tactile Warning Strip
B. Single Gull Wing Canopy Shelter
C. Trees
D. Transit Lighting
E. Pedestrian Track Crossing
F. Ticket Vending/Validation
G. Traffic Divider
Bus Facilities

Bus Facility Goals

- Integrate new park-and-ride facilities with express bus corridors, LRT corridors, existing bus services and/or non-traditional transit delivery options (e.g. DART on call, employer shuttle, etc.)

- At DART transit centers, the priority for circulation, in order of importance, is:
  - Pedestrians
  - DART buses
  - Private or DART shuttles
  - Private vans
  - High-occupancy vehicles (HOVs)
  - Taxis
  - Kiss-and-ride, and finally
  - Park-and-ride vehicles
Bus Facility Guidelines

- Provide for adequate maneuvering in the transit center layout.

- Integrate bus circulation with the overall circulation and land use pattern planned for station areas. Provide direct access from surrounding streets to transit center platforms for buses as feasible.

- Evaluate Bus Priority Treatment as part of a Transportation System Management (TSM) program to minimize delay of bus access to transit centers. Examples include exclusive bus lanes, exclusive ramps, queue jump or bypass lanes, exclusive bus stopping or turning privileges, and signal priority for buses.

- At transit centers on HOV corridors, provide direct ramp access from TC to HOV lane(s) where possible.

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8th and Corinth Station, Dallas

Left: Arapaho Station, Richardson. Right: East Transfer Center, Dallas.
Provide comprehensive pedestrian and bicycle access throughout the transit center. Ensure ADA compliance at bus stop landing pads and at all routes from platforms to vehicles areas. Coordinate with adjacent property owners to achieve accessibility between properties.

Left: Access for the mobility-impaired, DART

Below: ADA-compliant level boarding, DART
- Add amenities such as designated boarding areas, safe, comfortable waiting rooms, time and route information, seating, telephones, etc. at stations.

- In the selection and design of station amenities, provide for both continuity of standard system elements and differentiation of local communities.

- Establish a family of furnishings that corresponds to anticipated transit center scale and usage. Differentiate small, intermediate, and large passenger volumes in determining the scale of platforms, shelters, amount of seating, and waiting areas, etc.

Transit center furnishings at the Addison Transit Center, Addison: Route kiosk, lights, trash receptacles,
Typical shelters, DART

The following pages contain diagrams that illustrate typical DART bus facilities.
BUS STOPS, PULL-OUTS, AND BAYS

A. On-Street Bus Pull-out, Detail
B. On-Street Bus Stop, Detail
C. Rail Station or Transit Center Bus Bay, Detail
A. Eight bus berths, one-way circulation
B. Taxi, shuttle, kiss-and-ride, one-way circulation
C. Park-and-ride parking
D. Potential Transit Center area mixed-use development
E. Boulevard collector/bus access
F. Local street
G. Potential mid-block access (typical)
A. Three bus berths, one-way circulation
B. Potential area for transit-oriented development
C. Boulevard collector/Bus access
D. Local street
A. LRT Platform
B. Bus berths
C. Additional bus access on central street
D. Taxi, shuttle, kiss-and-ride, one-way circulation
E. Potential station area mixed-use development
F. Local street
G. Inbound (Downtown Dallas) track
A. LRT Platform
B. Bus berths
C. Taxi, shuttle, kiss-and-ride
D. Park-and-ride parking
E. Potential station area mixed-use development
F. Bus access
A. Elevated LRT platform
B. Bus berths
C. Taxi, shuttle, kiss-and-ride, one-way circulation
D. Park-and-ride parking/TBD
E. Potential station area development
F. Potential air rights development
G. Public space at station
A. LRT side platform
B. Bus circulation
C. Taxi, shuttle, kiss-and-ride
D. Potential station area mixed-use development
E. Bus access, secondary and circulation
F. Local street
G. At-grade pedestrian crossing
H. Public space (plaza) at station
Facility Furnishings

Facility Furnishing Goal
- Ensure that DART facilities have furnishings that contribute to the environment at the bus or LRT station for pedestrians, passengers, and the neighborhood.

Facility Furnishing Guidelines
- Locate benches at stops serving schools, hospitals, senior centers, rehab centers, medical facilities, etc.

- Explore opportunities for stand-alone and integrated public art in station architecture and landscaping. Where appropriate, express local community themes in station art and design.

- Limit public art to durable materials that will require minimal maintenance. Identify funding for maintenance at the time of commissioning or acquisition of each piece.

- Establish a family of furnishings that corresponds to anticipated facility scale and usage. Differentiate intermediate and major-capacity bus facilities in the scale of shelters, amount of seating and waiting areas, and some amenities.

- In the selection and design of station amenities, provide for both continuity of standard system elements and differentiation of local community themes.

_Durable art at DART stations_
REFERENCES

1. DART Design Criteria Manual, Volume One, April 1996

2. DART Bus Stop Planning Manual

3. DART Art and Design Program Overview-September 1995

4. DART 2030 Transit System Plan
VII. DART TOD Policy

The TOD Policy was approved by the DART Board on August 26, 2008.

(Begins on next page.)
Transit Oriented Development Policy

Section 1. Purpose

DART is the steward of a significant public investment which includes important real property assets. These real property assets can also be used to leverage the viability of the transit system and to add to its value to the community. Continuing expansion and maturation of the transit system along with federal, regional and local initiatives that direct and concentrate transit oriented development and urban infill around transit facilities enhance the value of these assets. DART seeks to work in close partnership with its member cities to identify and implement TOD opportunities. By promoting high quality Transit Oriented Development on and near DART owned properties, the transit system can attract riders and generate new opportunities to create revenue for DART, and environmentally sustainable liveable communities that are focused on transit accessibility.

Section 2. Definitions

2.1 Transit Oriented Development (TOD) is characterized by the integration of transit facilities or elements, either bus or rail, throughout the development of intensive, high quality uses oriented towards DART facilities by others and/or development which is located adjacent to a transit facility. Transit Oriented Development shares a functional or financial relationship to the transit system.

2.2 Joint development is a subset of TOD and is development in which DART has a formalized relationship with a developer for land use, infrastructure improvements, and shared facilities.

Section 3. Goals

DART recognizes that Transit Oriented Development can be a means to accomplish the following goals:

3.1 Increase transit ridership through the coordinated planning of land use and development of properties at and/or near DART stops, stations and transit centers.

3.2 Enhance the value of DART real property and other assets by designing transit facility access, and circulation to accommodate future TOD while maintaining accessibility and visibility to transit.

3.3 Encourage intensive, high quality development projects on and around DART station properties and along DART transit routes and corridors.

3.4 Enhance the quality of life at and around DART stations through the coordinated development of accessible pedestrian and non-motorized environments at transit stops and stations.

3.5 Use the appropriate method of disposing of DART real property for Transit Oriented Development projects to achieve specific development objectives and demonstrate a fiscal benefit to DART.
Transit Oriented Development Policy

Section 4. TOD Strategies

4.1 DART seeks to enhance the future value of planned DART facilities for TOD through one or more of the following:
   a. strategic acquisition of property to capture potential TOD opportunities;
   b. early design of transit facility elements such as, parking, circulation, and access;
   c. platform and infrastructure placement and orientation, in anticipation of reallocating surface parking spaces to incorporate eventual transit oriented uses. When feasible, these spaces should be integrated into TOD through the use of shared parking structures.

4.2 DART seeks to foster cooperative relationships with other governmental entities, local communities, and the private sector for the development of comprehensive development plans, station area plans, property acquisition and disposition, and development of financial strategies and tools such as assessment districts, tax increment finance districts, or improvement districts, any of which may be located on and off DART property.

4.3 DART seeks to encourage direct connections to transit stops and stations from surrounding development. Projects shall be consistent with City/Community TOD policies and plans.

4.4 DART seeks to cooperate with other governmental entities and communities in the DART service area early on in the development process to enhance multi-modal access to and from DART stations.

4.5 To the extent allowed, DART seeks to use Transit Oriented Development revenues to support additional Transit Oriented Development projects, programs and infrastructure on DART property.

Section 5. Approval of DART Participation in Transit Oriented Development Projects

DART will use the strategies set out in this section to accomplish its Transit Oriented Development goals when soliciting and evaluating specific Transit Oriented Development projects.

5.1 Developer and/or member city inquiries to discuss the following shall be directed to DART staff responsible for TOD:
   a. the feasibility or potential partnerships for development of TOD at specific DART stations;
   b. availability of DART property for TOD;
   c. or development of specific plans for future TOD projects

5.2 DART Staff will periodically brief the DART Board or the committee of the Board that has responsibility for TOD on potential development partnerships and interest in development of specific DART facilities.

5.3 Following review with the committee, DART staff will prepare a solicitation for TOD of DART property.

5.4 Solicitation of proposals for Transit Oriented Development on DART owned property shall be through an appropriate selection process that will result in a favorable outcome for the agency.

5.5 The Board shall consider the nature of the TOD and the recommendation of TOD staff and shall determine which of the two following solicitation methods is appropriate for use in the particular situation:
   a. The Standard Developer Solicitation Method consists of a comprehensive
The pre-solicitation process that is used to gather and organize the necessary information to place DART in a position of strength to negotiate a Development Agreement. Following the pre-solicitation process, a Two-Step Request for Qualifications (RFQ) / Request for Proposals (RFP) approach shall be used as a tool to evaluate and rank potential development teams.

b. The Streamlined Developer Solicitation Method allows DART to expedite the process to identify a development team. After an accelerated pre-solicitation process, the RFQ and/or RFP approach shall be used as a tool to evaluate and rank potential development teams.

5.6 From time to time, development teams and/or landowners may approach DART with TOD opportunities. In these instances, the Board may authorize an alternate method in which DART staff will evaluate the opportunity. Such evaluation may include meeting with stakeholders and other interested parties, and performing financial and market analyses. Following presentation of the results of the evaluation, the Board may authorize negotiations with the potential private partner.