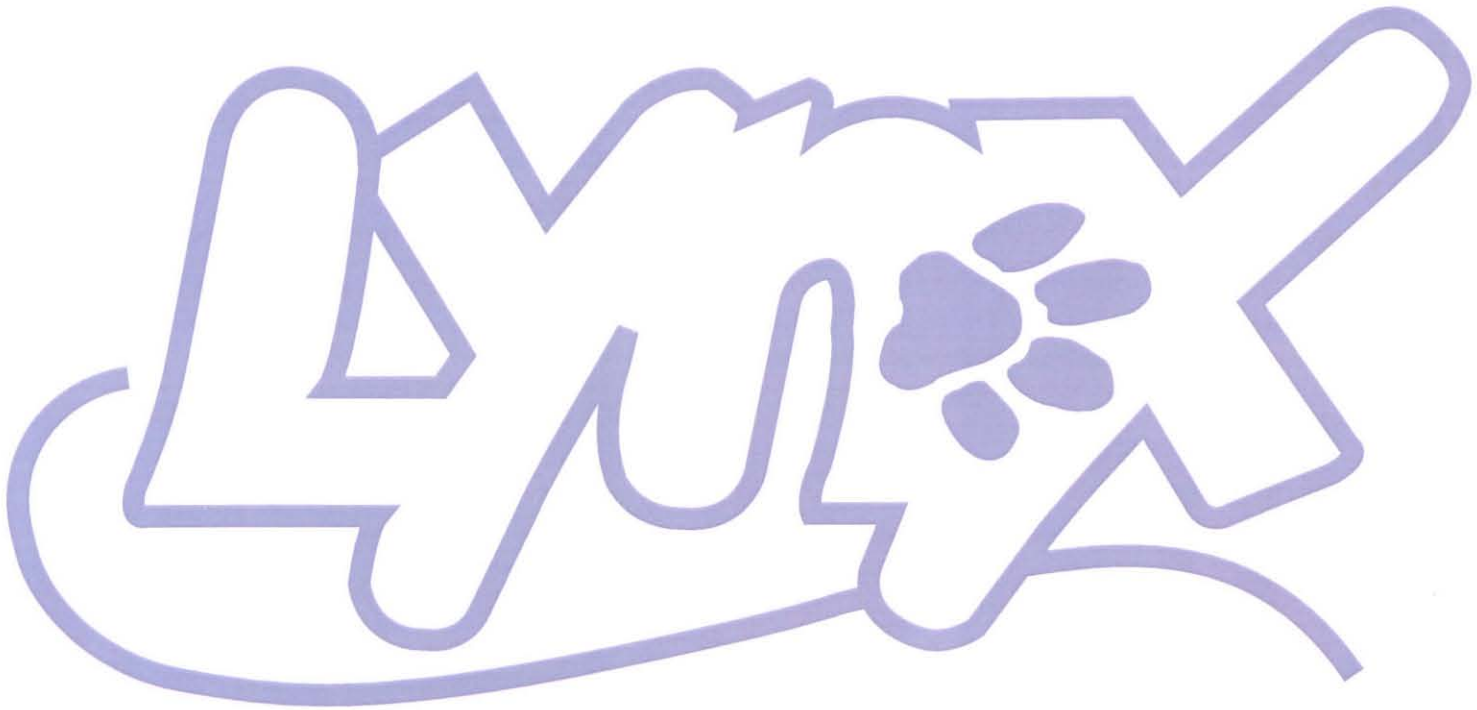
RAIL DESIGN MANUAL



Prepared by
Glatting Jackson Kercher Anglin Lopez Rinehart, Inc.

TABLE OF CONTENTS

Introduction **The Lynx Story** 1

Why Light Rail?
A Regional Partnership
Making It Happen
The Purpose of This Manual

Section 1: **Planning Principles and Urban Design Guidelines** 9

Planning Principles
Community Visioning
Light Rail Urban Design Guidelines

Section 2: **Alignment Planning and Design** 21

A Blueprint for Future Development
Corridor Identification
Alignment Alternatives
Route Selection

Section 3: **Station Planning and Design** 31

Role of Stations
Station Types
Station Function
Station Configuration
Station Form

Section 4: **Station Area Design and Implementation** 37

Station Area Design
Context Design Research
Urban Design Plan
Station Plan
Implementation

TABLE OF CONTENTS

Appendix **References/Bibliography** 51

Lynx Contact Reference Numbers

Supplement: **Preparing For Light Rail** A1

Initial Segment
Orlando International Airport Corridor
North Corridor
West Corridor
East Corridor
Attractions Corridor
US 192 Corridor
Kissimmee Corridor

A REGIONAL PARTNERSHIP

METROPLAN Orlando

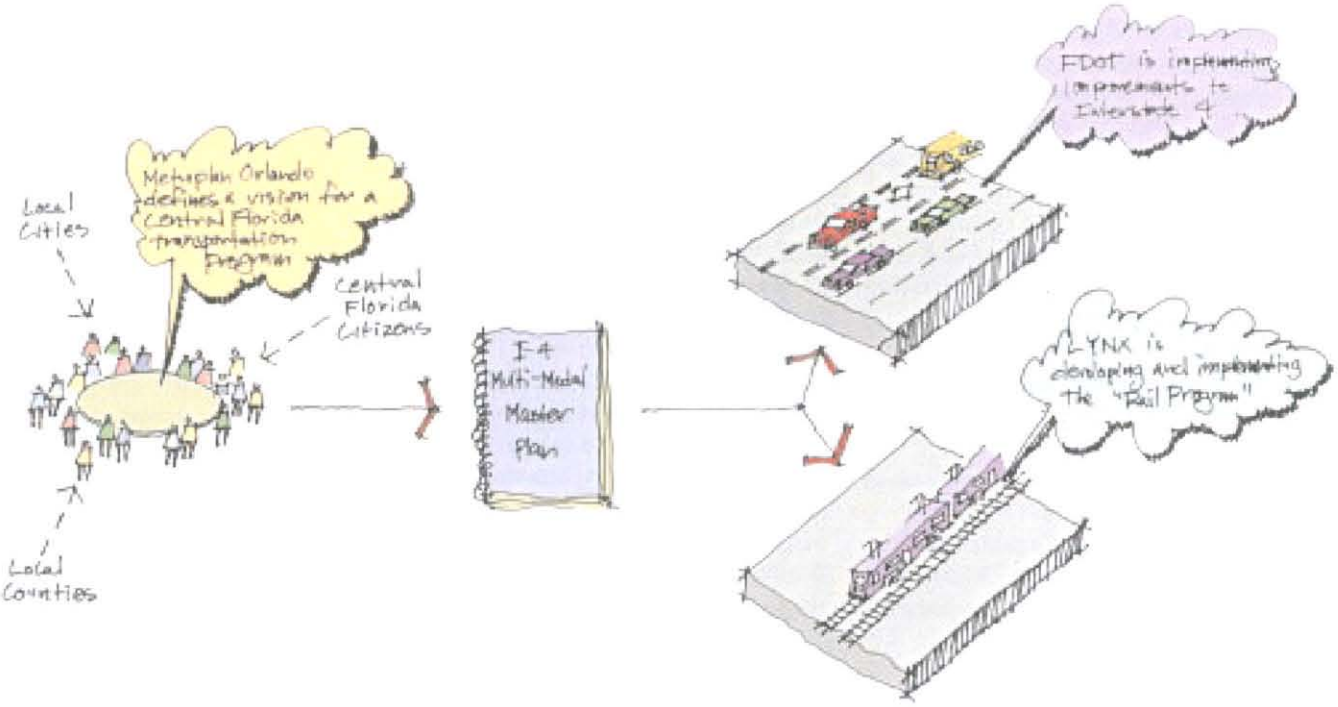
The decision making process for the prioritization and distribution of federal transportation dollars in Central Florida is coordinated by Metroplan Orlando. Metroplan Orlando is the region's metropolitan planning organization (MPO). The agency is comprised of 18 elected officials from cities and counties throughout Central Florida.

Five transportation agencies are responsible for implementing transportation decisions identified by Metroplan Orlando. These agencies include: LYNX, the Florida Department of Transportation (FDOT) District 5, the FDOT Turnpike District, the Orlando-Orange County Expressway Authority, and the Seminole County Expressway Authority.

Since 1989, Metroplan Orlando has been coordinating planning efforts for the Interstate 4 corridor with LYNX and the FDOT District 5. The Interstate 4 Multi-Modal Master Plan was completed and adopted by Metroplan Orlando in 1996.

METROPLAN ORLANDO Voting Members	
Orange County	(6)
Seminole County	(2)
Osceola County	(1)
City of Orlando	(2)
City of Sanford	(1)
City of Altamonte Springs	(1)
City of Winter Park	(1)
City of Kissimmee	(1)
GOAA	(1)
OOCEA	(1)
LYNX	(1)

Source: MetroPlan Orlando



The I-4 Master Plan

In 1991, the FDOT passed an executive order stating future mobility should not be met solely through the planning of more highway capacity. This action limited the number of travel lanes on all state roads, including Interstate 4, to six general use and up to four high occupancy vehicle (HOV) lanes. This order was issued by the FDOT because of the impossibility of accommodating the recommended widening of Interstate 4 from six to seventeen travel lanes. The dramatic widening of Interstate 4 is an unacceptable solution because of dramatic community impacts and limited financial feasibility.

Since 1991, the FDOT has been working with Metroplan Orlando and LYNX to implement a transportation program that incorporates pedestrians, bicyclists, transit customers and motorists as partners in mobility. Completed in 1996, the Interstate 4 Multi-Modal Master Plan (I-4 MMMP) identifies a solution which balances Central Florida's transportation systems. It provides viable transportation choices rather than focusing on a single mode of travel.

Dependence on the automobile as the only mode of travel within Central Florida will cause slow erosion of the region's livability. The resulting increased traffic congestion, decreased pedestrian safety and degraded air quality (associated with this dependence) will result in a community less attractive to residents, business people, and visitors. The I-4 MMMP identifies potential mobility gains, with less negative impacts on Central Florida through a broad spectrum of measures. These include car pooling, express bus, and light rail transit.

It is important for community leaders of Central Florida to promote, establish, and support alternative modes of travel. The FDOT and LYNX are implementing recommendations established in the I-4-MMMP and adopted by Metroplan Orlando. LYNX has positioned itself to begin construction of the first phase of their LRT system between Central Florida Parkway, near Sea World north to Florida Hospital.

FLORIDA DEPARTMENT OF TRANSPORTATION

November 14, 1991

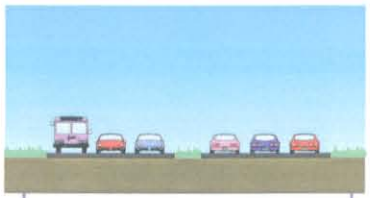
Governor Lawton Chiles
The Capitol
Tallahassee, Florida 32399-0001

Dear Governor Chiles:

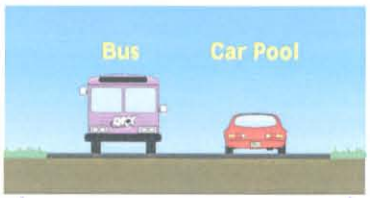
As we near completion of our Interstate Highway System, we come to the end of an era in American transportation history. Over the past thirty-five years, the Interstate system has profoundly influenced the lifestyles, work choices, and leisure activities of all Americans. The new era that we are now entering will focus on preservation and, where appropriate, expansion of this system which constitutes only 1% of the nation's highway mileage but carries 22% of all the highway travel.

FDOT Lane Limit Policy

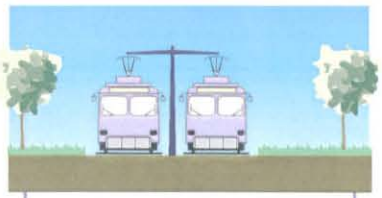
I-4 Multi-Modal Master Plan direction.



Six General Highway Lanes



High Occupancy Vehicle Lanes



Light Rail Transit System

The Rail Program

Concurrent with the development of the I-4 MMMP, LYNX developed a "rail program" to implement Metroplan Orlando's long-range vision for rail service in Central Florida. The rail program incorporates both light rail and commuter rail technologies as integral elements to the region's livability and quality of life. LYNX has developed this rail program simultaneously with community planning efforts.

Light Rail

Light rail transit is a popular form of transit for urban centers around the world. Light rail technology is similar to trolley cars. It is powered by overhead electric power, which allows it to interact seamlessly with automobiles and pedestrians. Light rail may use mixed, shared or exclusive rights-of-way. It has been identified as the primary rail technology in the LYNX Rail Program.

- Maximum speed: 55-65 mph
- 12,500 passenger per hour
- Exclusive, shared, or mixed R-O-W
- Overhead electric power
- Non-proprietary, competitive bid
- Tested technology

LYNX proposed light rail vehicle (LRV)

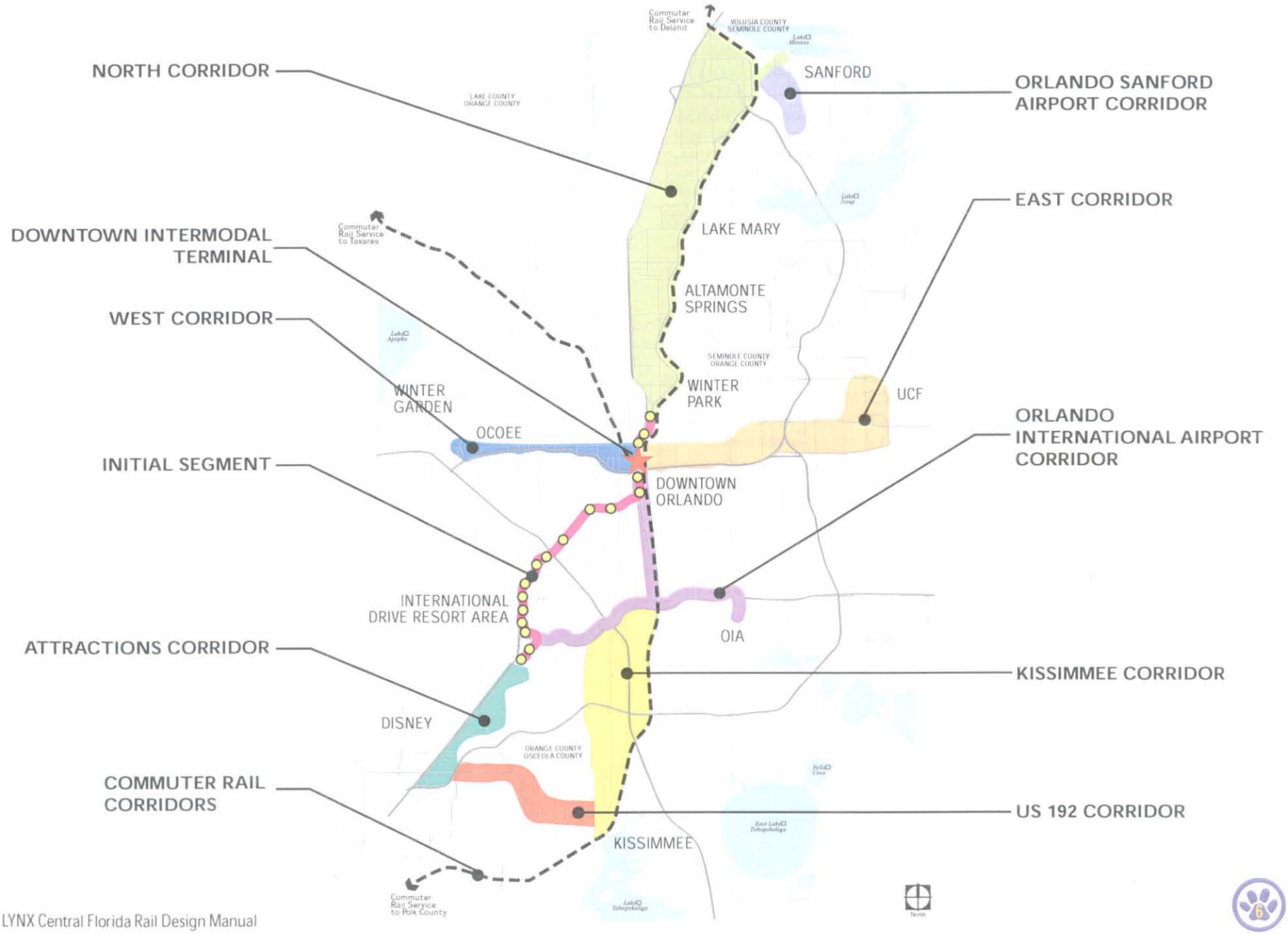
Commuter Rail

Commuter rail is identified in the LYNX Rail Program to connect Volusia, Lake and Polk counties to the Orlando Metropolitan Region.

- Maximum speed: 60-80 mph
- 7,000 passenger per hour
- Shared track with freight
- Locomotive-hauled or self-propelled
- Non-proprietary, competitive bid
- Tested technology

LYNX proposed commuter rail vehicle, similar to Tri-Rail, Miami, Florida

CENTRAL FLORIDA LIGHT RAIL TRANSIT SYSTEM



THE PURPOSE OF THIS MANUAL

This Rail Design Manual provides guidelines for the preparation, design, and promotion of development around the proposed LYNX Rail Program. This manual will focus on four items:

1) Urban design principles and guidelines;
2) Alignment decision making process;
3) Station planning and design; and,
4) Station area design and implementation

Particular attention is paid to design decisions affecting the way the alignment and station locations are selected in order for them to fit into the community.

Development of the LYNX Rail Program is seen as a positive tool for traffic and growth management. It helps relieve congestion and guides development supportive of a balanced transportation system. By appropriately locating and designing rail corridors and stations, local community plans can be reinforced or developed to encourage a development pattern that will allow residents, visitors, and businesse owners a variety of transportation alternatives.

Developed correctly, the LYNX Rail Program will provide a viable environmentally friendly transportation alternative to the automobile. It will facilitate a redistribution of future growth into a sustainable pattern.

LYNX has developed this planning manual to assist the development community and local jurisdictions to successfully prepare for and implement the LYNX Rail Program. This manual is the third element of the LYNX Mobility Design and Customer Amenities Manual series.

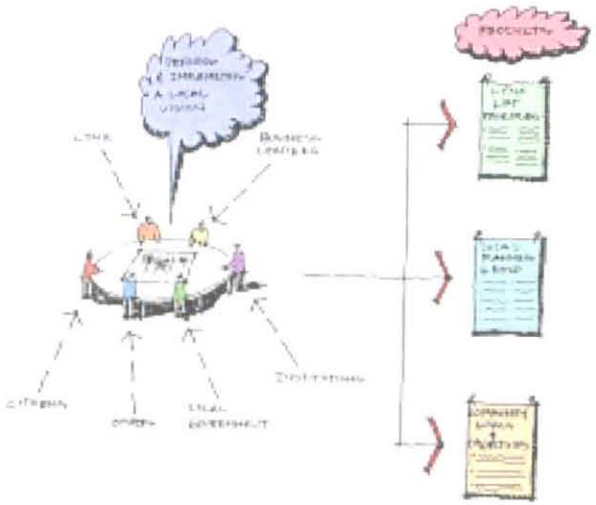
The planning process identified in this manual should be carried through with enthusiasm and cooperation among local jurisdictions, the private development community, neighborhood groups, and LYNX. The LYNX Rail Design Manual will become a template for assisting the communities immediately served by the first phase of rail development as well as act as a guide for other communities served by rail transit in the distant future.

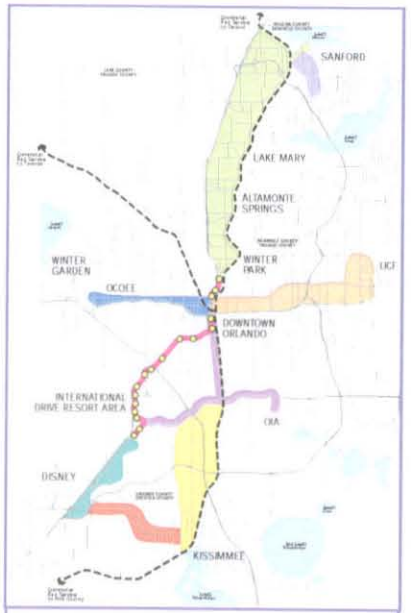
Section 1
Planning Principles and Urban Design Guidelines

Section 1 will present the principles and guidelines which orient the decision making process for advancing various components of the program. This section will illustrate fundamental elements that will educate local communities on how alignments and station locations must be developed to effectively serve and integrate into each community in Central Florida.

Section 2.
Alignment Planning and Design

Section 2 will describe the planning issues and process related to light rail corridor alignments. This section will identify the LYNX corridor planning process and present issues and criteria related to defining light rail alignments which best serve the needs of the region as well as individual communities.





Central Florida Rail Program

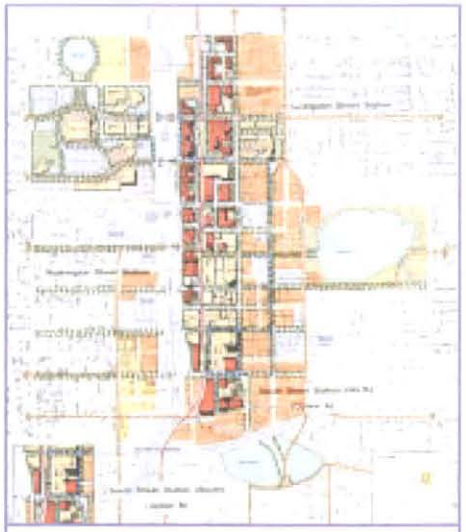
Section 3
Station Planning and Design

Section 3 will describe the station design process outlining the steps and issues related to integrating light rail stations into local communities. Basic station function and design elements are illustrated to educate local communities on the fundamental design requirements of light rail stations.

Lake Eola Station Concept

Section 4
Station Area Design and Implementation

Section 4 will illustrate the planning and urban design process for each station area. This process will guide and direct future growth and development by recognizing the influence light rail will have on the immediate area and identifying opportunities for transit-oriented development. This chapter illustrates how short term urban design plans guide the design of each station. It outlines how the station will functionally co-exist with the surrounding properties. It also demonstrates how long-term urban design plans set a vision for future transit-oriented growth in the region. This section shows how that vision is refined and implemented through coordination with local jurisdictions, potential developers, and LYNX.



Downtown Orlando Urban Design Plan

Supplement
The Rail Program Status Report

This supplement illustrates a corridor by corridor status of the LYNX rail planning effort. The report will present community-planning efforts that have contributed to the alignment and station location selection process. The report will also document technical requirements to successfully implement rail transit service within each of the identified LYNX rail corridors. LYNX will periodically update this report as the rail program evolves.

A Planning Checklist

- ☑ Understanding and communicating the LYNX Rail Program with your community. (Introduction)
- ☑ Communicating your community goals and vision with LYNX. (Section 1)
- ☑ Planning with LYNX a local rail alignment that best serves your community (Section 2)
- ☑ Designing with LYNX station plans and designs to serve your community. (Section 3)
- ☑ Implementing the Light Rail Urban Design Guidelines in your Community. (Section 1)

PLANNING PRINCIPLES

"The Portland story is more about community building than light rail building".

- G.B. Arrington, Tri-Met

Successful integration of the LYNX Rail Program into the Central Florida community fabric is critical to the long term acceptance, success, and expansion of the LYNX Rail Program. Nowhere is this integration more important than in the planning and urban design of the alignment and station areas.

Public acceptance and use of the system will develop around the system's ability to accommodate pedestrians, bicyclists, transit customers and motorists, while facilitating future growth.

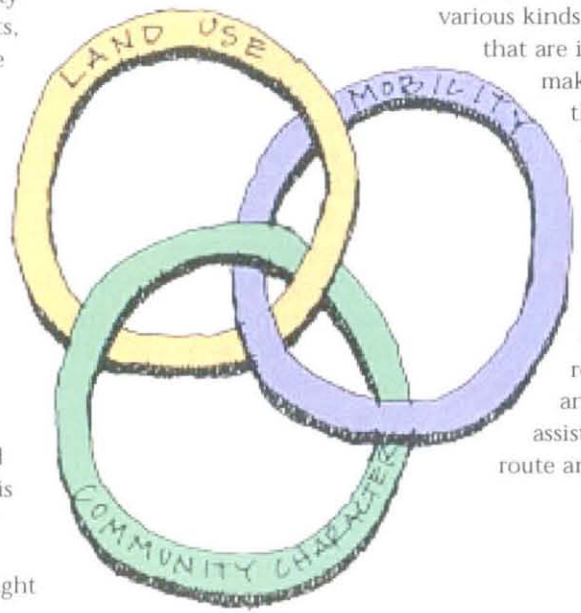
Appropriate routing, the quality of design and integration of stations will establish the system's ability to effectively serve the mobility needs of Central Florida.

LYNX must provide Central Florida with a level of confidence that will foster greater regional mobility, enhance the urban fabric, and guide future investment. The planning and urban design approach outlined in this Rail Design Manual is guided by four basic planning principles, four community visioning elements and eight urban design guidelines.

Implementation of the LYNX Rail Program is focused around a coordinated team effort, which integrates LYNX operational and technical efficiency requirements with a comprehensive community visioning process.

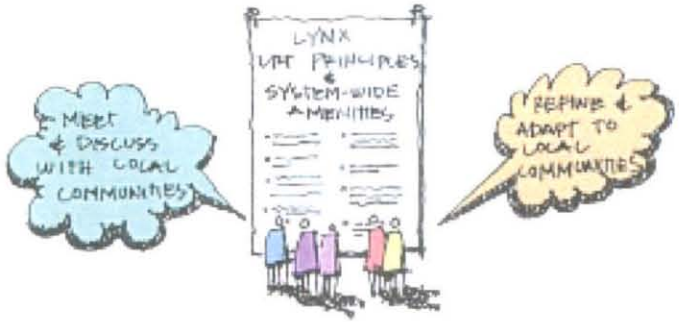
Foster an Integrated Approach

Implicit to the development of the LYNX Rail Program is a cultural shift in the methods and approach to city building. It is essential to remove organizational and psychological barriers that isolate the various kinds of expertise and initiatives that are integral to successful city making. The habits of minds that have grown up around the one-project or one-issue-at-a-time approach must be overcome. This will ensure that every stakeholder within each station area has the opportunity to understand the benefits related to the rail program and has the opportunity to assist LYNX in guiding the final route and form of each station area.



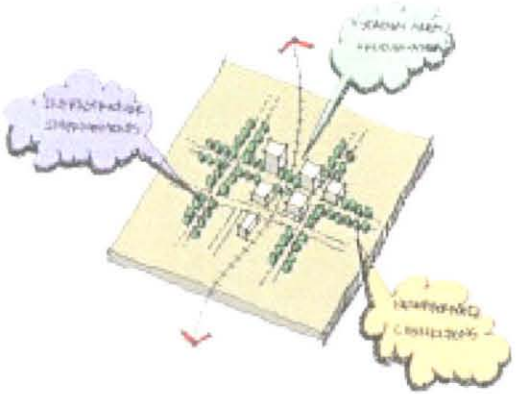
Provide Clear Policy Directions while Maintaining Flexibility

LYNX has important responsibilities to provide clear system-wide amenities to insure customer comfort and understanding. Yet, because each station area's evolution will be dynamic and not entirely predictable, LYNX station design standards must provide flexibility to accommodate the uniqueness of each station area. The majority of station amenities will be developed for region-wide applicability. Individualism will be accommodated and encouraged to celebrate each station area.



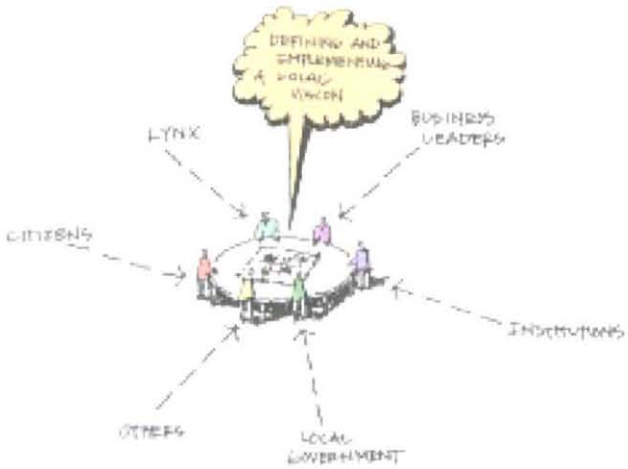
Invest Strategically

Good LRT system and station designs are manifested in community acceptance and joint-development projects. The identification of strategic projects that set the standard and lead the way in station area investments is essential. The successful design of stations will be realized through a combination of projects at various scales. Large-scale projects are important for their visibility. However, the energy directed toward attracting large-scale projects will not be to the exclusion of smaller-scale, fine-grained development within each station area. The power of modest, incremental change can not be underestimated. Over time, small-scale initiatives effect profound overall change in station areas.



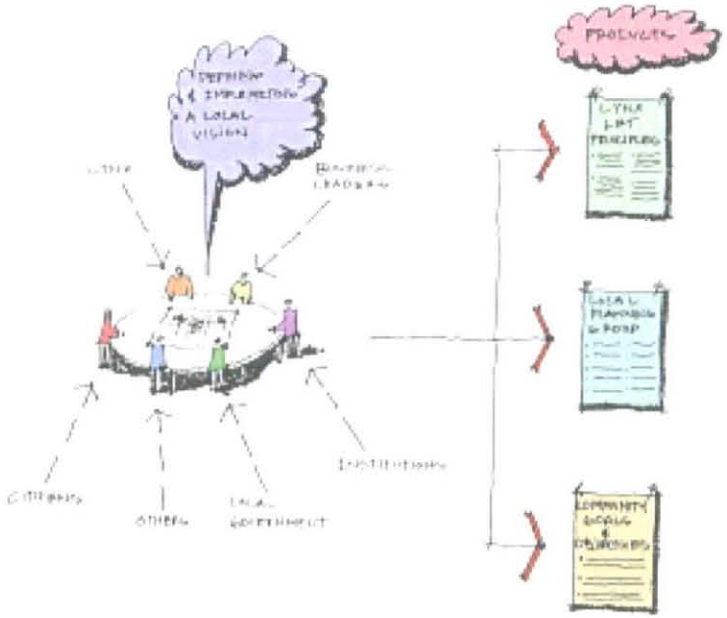
Ensure Stewardship

The implementation of routing and station area plans will aid in the long-term success of LYNX and a more sustainable development pattern for Central Florida. The design and implementation of the routing and stations must ensure that local jurisdictions and surrounding neighborhoods take ownership of the LRT system and station areas. Acceptance of the LRT system by the local community will directly benefit LYNX through long-term transit oriented investments and increased ridership within each station area.



COMMUNITY VISIONING

Fostering community involvement and input is critical to the success of the rail program. A "Community Visioning" process that teams LYNX with local governments and citizens is a necessary component of the light rail planning process.

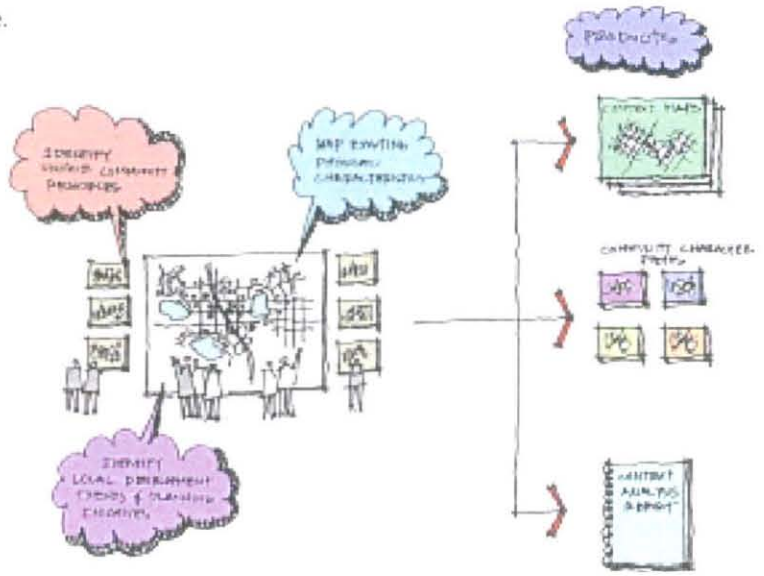


Organizing

Directing the planning and implementation of light rail in our community - LYNX will facilitate a planning process that has broad representation from the community including representatives from local government, business leaders, institution managers, citizens, and neighborhood associations. Organized for the purpose of directing the design and planning of light rail, LYNX will facilitate a discussion of local goals, concerns, and ideas. A direction will be set that balances the goals of the local community with the needs of an effective light rail service.

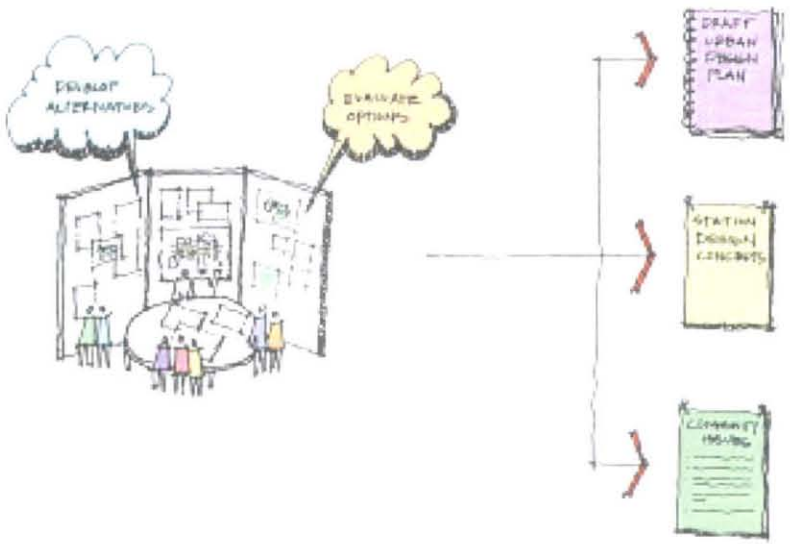
Preparing

Understanding our community - LYNX will work with local communities to understand land use patterns, development trends, their environment, transportation needs, and community resources in order to best define how to serve each community with light rail transit. Analyzing the physical environment allows the unique and positive characteristics of each community to be identified. A clear understanding of these features provides a foundation from which to build.



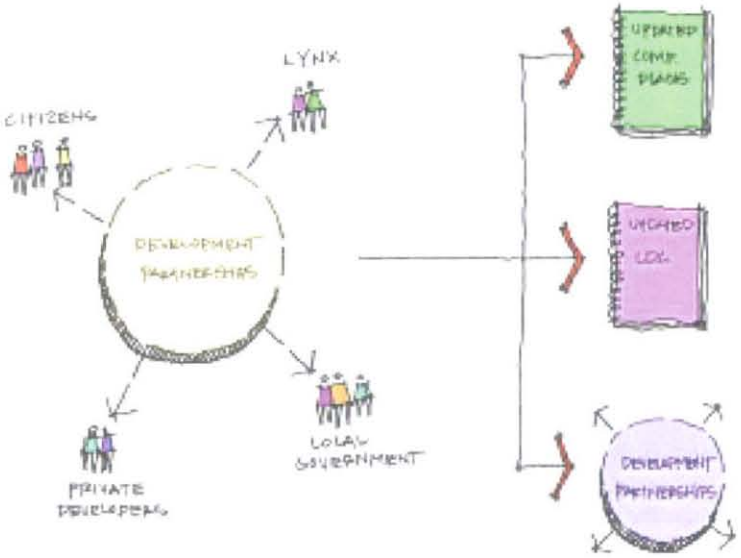
Designing

Defining a transit-oriented vision for our community - Building on local knowledge, LYNX will work with communities to design alternatives for implementing light rail. This design process will bring together design professionals, citizens, and elected officials to collaboratively explore design solutions for each community. A vested community interest will be built through broad participation; coupling the local knowledge of citizens with designers to produce successful solutions. The result will be a plan that directs the design of light rail in each community.



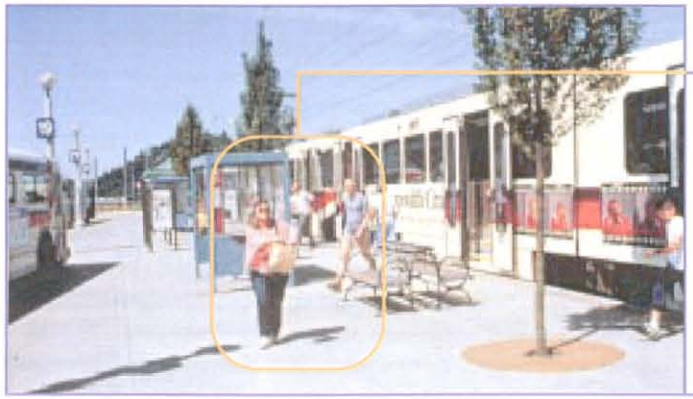
Implementing

Integrating light rail into our community, making our vision a reality - Innovative, multi-disciplinary partnerships will be required to take advantage of the unique opportunities that light rail presents. Implementation will require long-term partnerships between LYNX, developers, citizens, and local government. Short-term objectives include coordinating station design and location, while long-term objectives include directing land use patterns and design guidelines that support both transit usage and community goals.



LIGHT RAIL URBAN DESIGN GUIDELINES

Effective rail transit planning recognizes the unique challenges and opportunities created by its permanent infrastructure investment. These urban design guidelines ensure that the planning and design of light rail corridors and station areas increase mobility options, enhance the transit experience, and integrate with the local community.



It is important to maintain quality connections between the LYNX bus network and the LRT system.

Design LRT to Best Serve Mobility Needs of Each Community

The LYNX LRT system will provide individuals an alternative transportation mode designed to complement existing mobility options established by the automobile, the LYNX bus network, and walking/bicycling. As the system is implemented, LYNX should focus on creating seamless transfers to the local mobility network. The full hierarchy of travel modes should be accommodated. Alignment routing and station design should establish convenient connections with the feeder bus routes, arterial road networks, and the pedestrian/bicycle network.

LYNX LRT vehicles, like the bus fleet, are design to accommodate cyclists. Each LRT vehicle will have inside storage room for bicycles.

Protect Community Identity and Character

One of the benefits of light rail technology is its ability to be integrated into existing urban environments without interfering with the character of local communities. Alignment routing and station design should reflect the character of a community through sensitive use of local materials and finishes, ample protection and buffering of sensitive community resources, and appropriately scaled station architecture. Route selection and station design can also feature community identity through the provision of public art and relationships with local landmarks.

The LRT station at the Saturday Market in Portland, Oregon provides transit access to an active local destination without interfering with character or function of the market.

A public art project incorporated as part of the design of an LRT station in Portland, Oregon reflects the local history of the neighborhood.

Link Regional Community Facilities

A successful light rail system and stations must provide mass transit access to numerous regional facilities. As part of the corridor planning process, activity centers and community facilities should be identified and provided with transit access where feasible. Station design should identify the adjacent local resources such as trail systems, parks, business districts and civic centers, and provide appropriate ways to serve them.

A possible light rail station in Winter Park, Florida would provide direct transit access to Amtrak, Central Park, the Winter Park Farmer's Market, and Park Avenue.

Busch Stadium in St. Louis, Missouri is served by the regional LRT with direct pedestrian access to the stadium from the station.

Create Public Open Spaces and Plazas

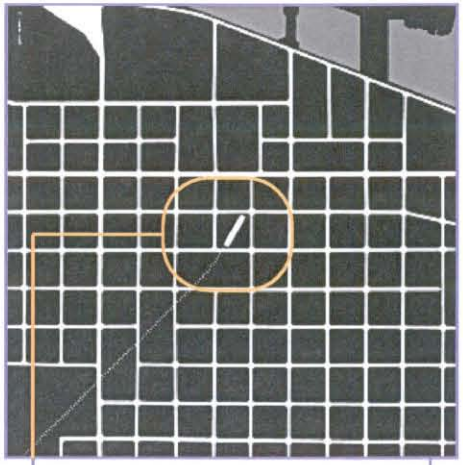
Light rail stations are unique public investments in communities. Stations represent permanent infrastructure investments and should be designed as important public spaces. Where appropriate, stations should provide public places for gathering to reinforce the civic role of the transit station in the community.

A public art project incorporated as part of the design of an LRT station in Dallas, Texas.

The station architecture is integrated into the design of Pioneer Square in Portland, Oregon, the major public space in downtown.

Utilize Traditional Development Patterns

The LYNX Rail Program is a permanent infrastructure investment that will serve future transportation needs in Central Florida. An important element in the long-term success of the system is the surrounding urban area's ability to adapt to constantly changing market demands over time. A traditional development pattern's well-connected, grid-based street network, building scale and orientation can accommodate various functions and support many types of activities. A manageable block structure and building scale can enable a district to transform to different activities parcel by parcel. Conversely, an inadequate street system with no discernible block structure and single purpose building design are unable to accommodate transformation to new uses. Redevelopment of non-traditional development patterns often represents significant financial investment and limit infill opportunities around stations.



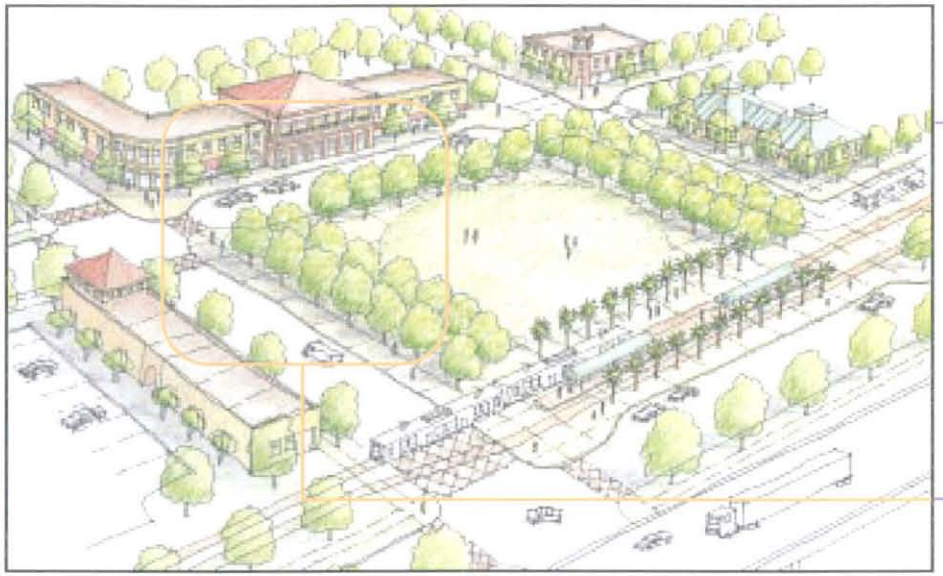
Traditional pattern of blocks and streets in downtown Sanford, Florida

Traditional pedestrian oriented new development Celebration, Florida

Traditional pedestrian oriented existing development Orlando, Florida

Provide A Mix of Complementary Land Uses

Rail stations ideally serve a mix of land uses. Where they meet a community's goals; station areas should be planned to include a range of uses including residential, office, retail, and civic uses. This mix of land uses increases the attractiveness of the area throughout the day and increases trip options for transit users. Stations should be designed to create and encourage mixed-use development around stations.



A possible Rio Grande station in Orlando, Florida would include new retail and office development around a public park, all linked directly to the light rail station.

This light rail station in Boston, Massachusetts provides transit access to a mix of land uses including retail, office, and residential.

Allow Increased Land Use Intensity

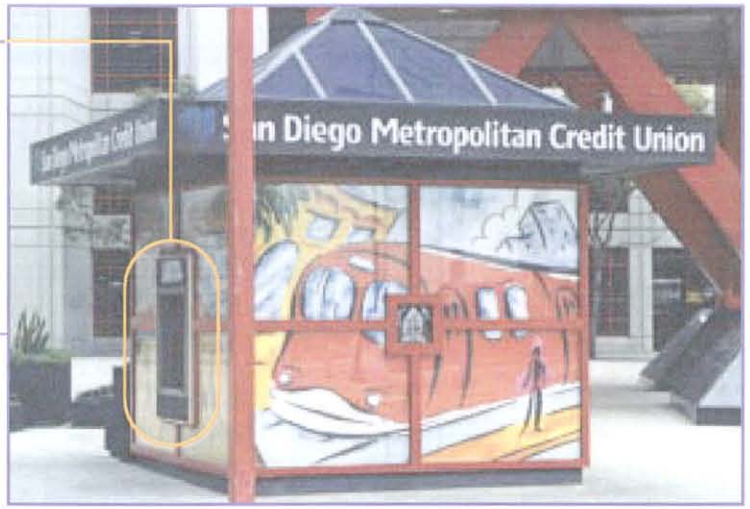
Allowing more intense uses adjacent to rail stations will increase transit ridership and attract new development along the rail corridor. Land use changes should be made with respect to the goals and objectives of local communities. Land uses should respect a regional growth management vision that encourages new development where transit access is available.

New apartment development in downtown Portland, Oregon, takes advantage of direct access to the light rail station.

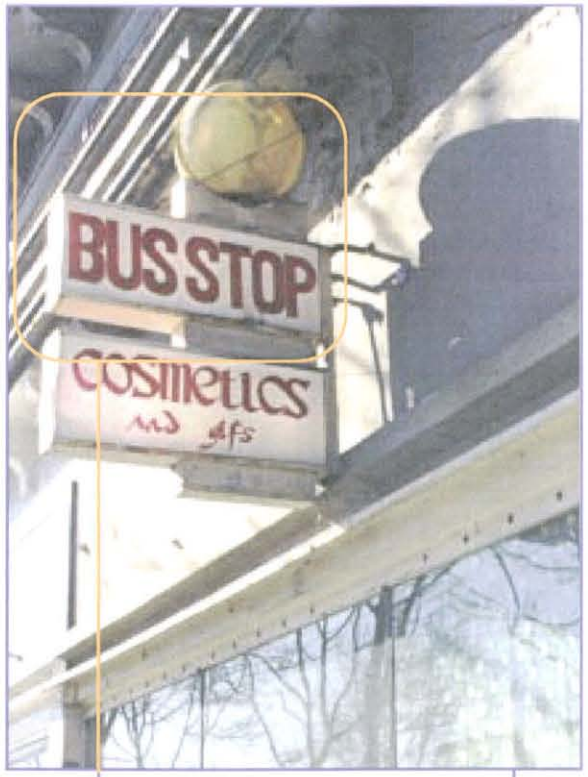
In Boston, Massachusetts, the light rail line serves higher density residential neighborhoods, maximizing ridership and serving regional growth patterns.

Integrate New Development

Transit stations should provide easy access and attractive links to existing development. In addition, new development should be located and designed to integrate with rail stations. Communities should encourage and support joint development (non-transit uses on transit property) and new infill development around stations.



An ATM has been incorporated into a light rail station area in San Diego, California.



The transit stop in this San Jose, California neighborhood has become an identifying feature of the area.

This new park and ride garage at a light rail station in Gresham, Oregon, incorporates commercial space on the ground floor.

A BLUEPRINT FOR FUTURE DEVELOPMENT

"The transit system was there for the community, not the community for the transit system"

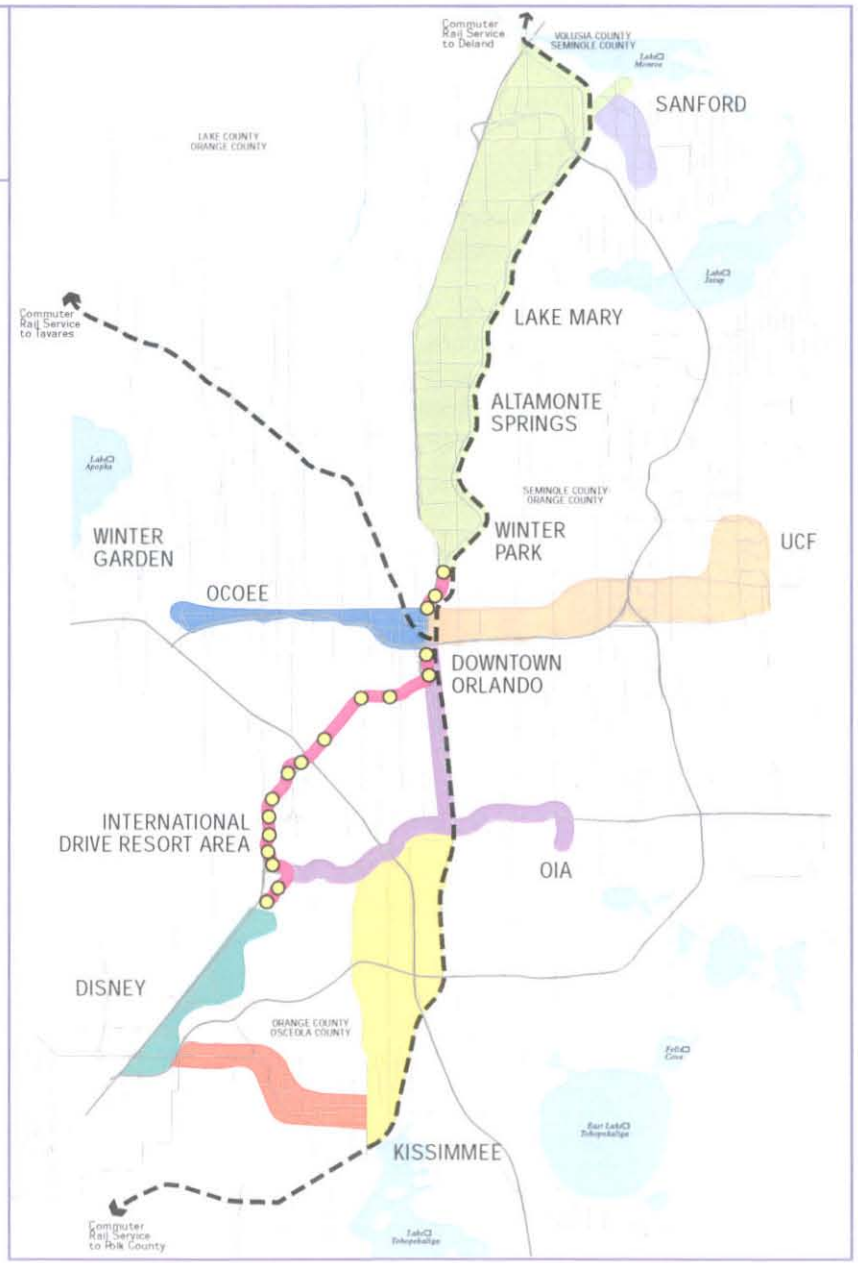
- Lee Auspitz, Member of the Davis Square Task Force, Sonnerville, MA

The LYNX Rail Program is a blueprint for future development within Central Florida. The highest concentrations of growth will occur within identified corridors. The rail program is consistent with regional growth plans and local comprehensive plans.

The LYNX Rail Program has developed from an understanding of how Central Florida will evolve over time. The program encompasses a "first glance" of how premium transit can serve the existing and future development patterns of the Orlando metropolitan region. Each corridor identified in the rail program is at a different stage of maturity and therefore at a different readiness for premium transit service. The initial LRT corridor from downtown Orlando to the International Drive area has its stations identified, route selected, and is ready for construction. However, the East, West, and Osceola County Corridors will have a longer wait for service as development occurs and travel demands begin to warrant alternative modes of travel.

The alignment selection process for premium transit has three planning and design stages: corridor identification, alignment alternatives, and route selection. Each stage evolves from the previous analysis, becoming more refined and accurate. This chapter will illustrate how premium transit corridors become

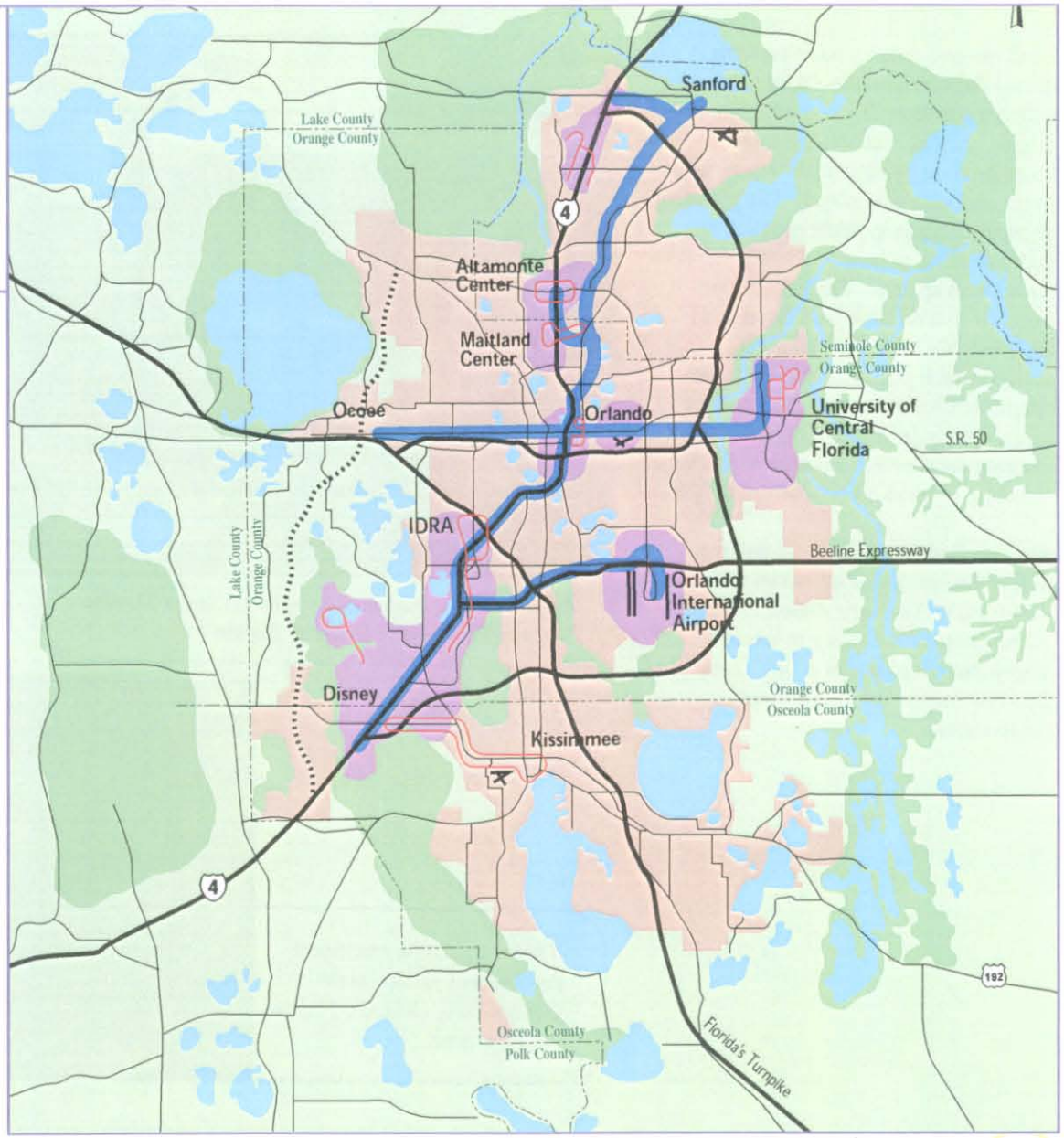
Central Florida Rail Program



specific rail alignments with station locations. Understanding each stage in the alignment selection process is important to government agencies, the private development community, and local residents. This understanding of growth and future development can guide the route selection process, increasing the viability of transit within each corridor.

The identification of a transportation corridor and potential station locations is the first step in developing effective transit service. Transportation corridors are established at a regional level because they serve multiple jurisdictions. The corridor identification process conducted in a joint planning process between Metroplan Orlando, the FDOT, LYNX, and local jurisdictions is developed to serve existing and future land development patterns adopted by local governments.

A community plan illustrates how premium transit serves the activity centers of Central Florida.



CORRIDOR IDENTIFICATION

Land use and development patterns dictate the transportation requirements within a corridor. The combination of origins and destinations indicates to transportation professionals where trips begin and where trips end. The planning of transportation systems requires an understanding of how traffic moves throughout an area. Their definition suggests that all trips pass through a corridor. Yet, at a regional level, transportation planners classify travel characteristics of a corridor into three categories: trips within a corridor, trips entering and leaving a corridor, and trips traveling through a corridor.

Existing and future land use patterns define transportation corridors and designate preliminary station locations. Although land uses vary in intensity, transportation planners classify land uses into two categories: origins and destinations.

Medium density residential town homes in the Thorton Park neighboorhood of Orlando, Florida

Transit supportive traditional development pattern in the College Park, Orlando, Florida neighboorhood.

Origins

Origins are where people begin, or produce, trips. Generally residential in nature, transportation origins also include hotel rooms, campgrounds, and other temporary stay facilities. No LRT stations will be located directly within a residential environment. LRT stations can be located near residential settings in commercial areas.

The density of residential units needed to support LRT varies based on many factors, such as: congestion, roadway options, feeder bus routes, the bicycle network and the quality of pedestrian environment. However, for planning purposes, LRT service is viable for park and ride stations in areas with residential densities as low as 3 to 5 units per acre.[7] Neighborhoods with higher densities between 7 and 15 units per acre may be capable of supporting light rail transit without a park and ride facility.[8] The density of origins on International Drive supports rail transit. Currently, there are 25,000 hotel rooms within a 5-minute walk of the proposed International Drive LRT stations. The average occupancy rate of 80% and an average of 2.9 people per hotel room means that there are approximately 58,000 transit dependant people on International Drive everyday.[9]

Destinations

LRT stations will be located in destination areas. Destinations attract person trips. Land uses within these areas vary between commercial, such as office and retail, and public or institutional uses. The Central Florida region has land uses of varying levels of intensity. These include urban activity centers, regional activity centers, and neighborhood commercial centers.

Urban activity centers include areas such as downtown Orlando, International Drive, Lake Buena Vista, and the Orlando International Airport. Intense development and major employment locations define urban activity centers. Employment generally exceeds 40,000 with a relative compact urban core with relatively high densities and a strong pedestrian orientation.

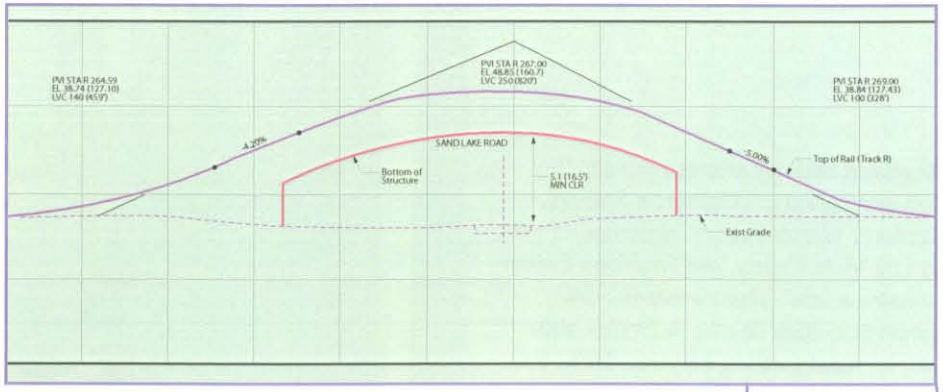
Regional activity centers include the dowtown areas of Altamonte Springs, Sanford, Winter Park, Kissimmee as well as Lee Vista Center, and Maitland Center to name a few. These areas provide medium to high density activities with employment ranging between 5,000 to 40,000 employees. The physical forms of these areas vary from a desired compact core and pedestrian orientation to more traditional suburban office centers and regional malls with car orientation.

Neighborhood commercial centers are residential in nature, supporting a commercial core. There are numerous examples of this category of development throughout Central Florida. The quality of commercial core ranges from community to community. The focus of commercial activity can range from community and government services to neighborhood retail and civic open space.

Downtown Orlando, Florida has the region's highest concentration of employment

ALIGNMENT ALTERNATIVES

Light rail transit provides opportunities for numerous alternative alignments through a transportation corridor. This section of the Rail Design Manual identifies the configuration options and right of way options available for local jurisdictions to prepare for the routing of rail transit through their communities.



Horizontal alignments 5 % max grade

At - grade alignment Sacremento, California

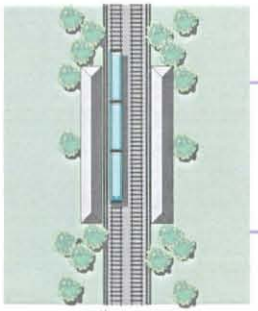
Aerial Station in San Diego, California

Configuration Options

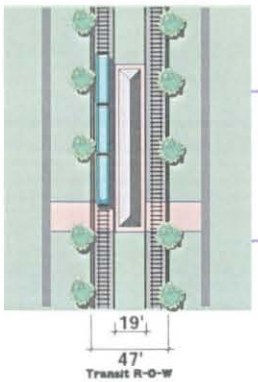
There are generally only two alternative rail alignment configurations available to LYNX in Central Florida: at-grade and aerial. The high water table in Central Florida makes subterranean alignment alternatives cost restrictive.

At-Grade Alignments - Light rail transit is capable of running at-grade through urban communities. The operating characteristics of light rail vehicles allow the operator to interact with pedestrian, cyclists and motor vehicles safely. For planning purposes, the right of way requirements for an at-grade alignment is 28 feet. The right of way alignment at a station is between 47 and 52 feet at grade.

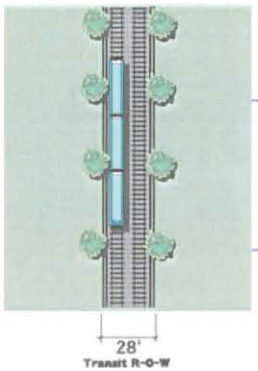
Aerial Alignments - Light rail transit aerial alignments are often designated for areas with narrow rights of way, severe traffic congestion, and limited pedestrian, retail, or other street life activities. The maximum grade of an aerial structure allowed by LYNX is 5%. A 16.5 foot minium clear height is required for roadway under aerial guideways. For planning purposes the right of way required for an aerial structure is similar to that of an at-grade alignment.



Side platform station



Center platform station



No station

Operating Options

The operating characteristics of light rail vehicles (LRV) allow for great flexibility in the kinds of right of way required by LYNX. There are three categories of operating characteristics available to LYNX: exclusive, shared, and mixed.

Exclusive - An exclusive right of way system for light rail transit allows the LRVs to operate without interaction with automobile or pedestrian traffic. Typical alignments that allow for exclusive running include an interstate median, aerial structure, or a reserved at-grade corridor. Benefits of this operation relate to higher running speeds. Shortcomings relate to the system's isolation and limited pedestrian access.

Shared - A shared right of way system for light rail transit requires the LRVs to interact with automobile and pedestrian traffic. The range of interaction is controlled to manage running speeds of vehicles. Typically, shared right of way limits automobile and pedestrian traffic to gated, or signal-controlled intersections. Typical alignments that allow for shared running include: roadway medians and rail corridors. Benefits of this operation relate to the system's ability to penetrate urban activity centers. There are limited shortcomings to this operating condition.

Mixed - A mixed right of way system is more typical of trolley alignments. LRVs operate in the same travel lanes as motor vehicles. The benefits of this system relate to operating characteristics enabling the integration of LRT into the urban context. The shortcomings of this option relate to the limits placed on operating speed of the system.

Exclusive alignment Calgary, Alberta

Shared alignment Portland, OR

Mixed alignment Baltimore, MD

ROUTE SELECTION

The LYNX alignment selection process is a collaborative effort with residents, business owners, and local jurisdictions to ensure that the resulting route is functional, efficient and well integrated into the surrounding context. Five project goals guide the creation a successful premium transit system. Each goal represents an important consideration when developing a regional transportation system.

Community Goal

How do the transit system alternatives serve their surrounding community? Four evaluation measures quantify the quality of community transit service.

Population Served - This evaluation measure examines transportation origins, or the number of people who live, within 1/2-mile radius of proposed station locations. This evaluation should measure both the existing and the adopted 20-year projection for population. The distance of a 1/2-mile is a ten-minute walk and the accepted maximum distance people are willing to walk to premium transit.

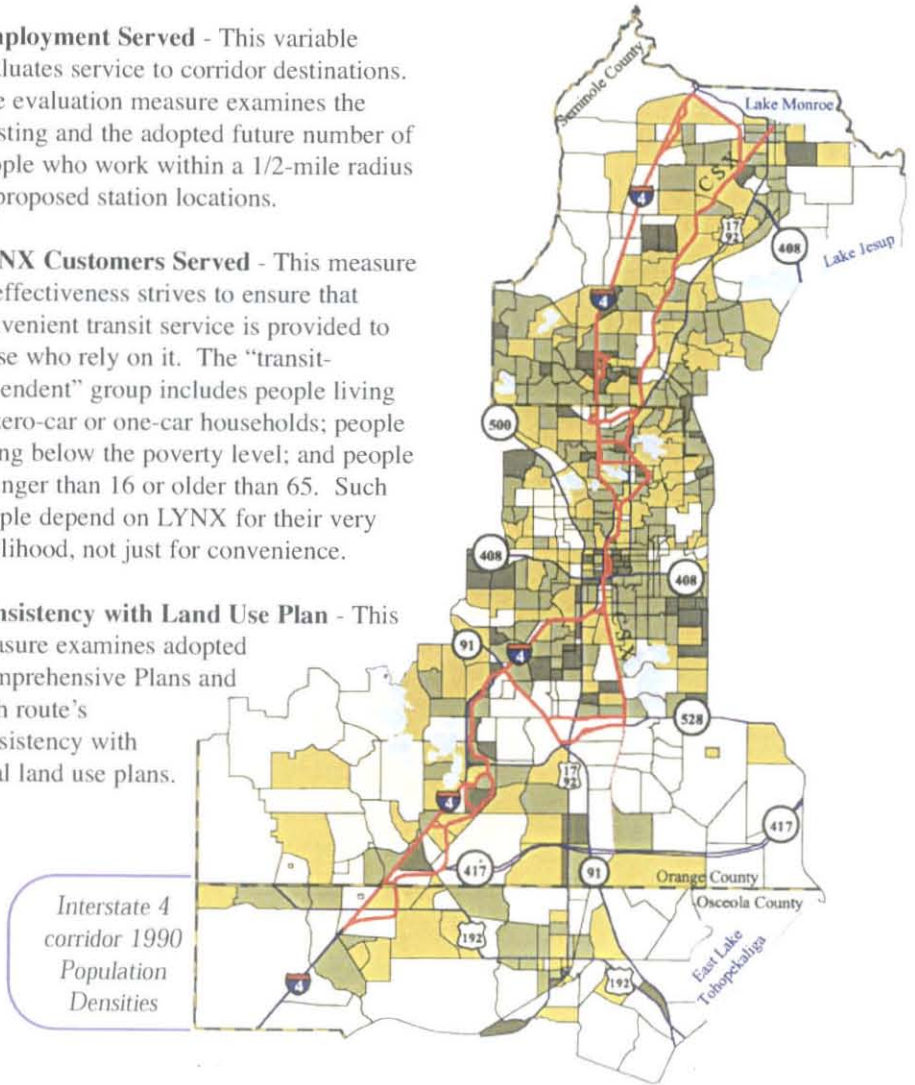
Employment Served - This variable evaluates service to corridor destinations. The evaluation measure examines the existing and the adopted future number of people who work within a 1/2-mile radius of proposed station locations.

LYNX Customers Served - This measure of effectiveness strives to ensure that convenient transit service is provided to those who rely on it. The "transit-dependent" group includes people living in zero-car or one-car households; people living below the poverty level; and people younger than 16 or older than 65. Such people depend on LYNX for their very livelihood, not just for convenience.

Consistency with Land Use Plan - This measure examines adopted Comprehensive Plans and each route's consistency with local land use plans.

SR 436 Interstate 4 station area land use

Horatio station area land use



Interstate 4 corridor 1990 Population Densities

Land Development Goal

How do route options and station areas promote sustainable transit development? Three evaluation measures quantify the transit alignment's ability to support economic development around each station.

Access - This measure documents the percentage of station area accessible by an actual 1/2-mile walk. This variable is key to alternative route analysis and has major implications regarding a station area's ability to accommodate both origins and destinations that will benefit from and support transit service. More detailed analyses measure actual residential units and acres of commercial property accessible from actual walking distances to and from transit stations.

Station Environment - This variable is a measure of the quantitative and qualitative data to assess the character of the walking environment near proposed station sites. Pedestrian-oriented environments extend distances people are willing to walk, improving the viability of transit. This measure quantifies the linear feet of all-pedestrian routes and auto-oriented pedestrian routes within 1/2-mile of each station.

Development Flexibility - Light rail transit promotes economic development around stations. This evaluation measure documents the station area's ability to accommodate alternative development patterns. A traditional block pattern and building architecture provide flexibility to accommodate a variety of land uses that may be introduced around each station. Non-traditional suburban street network and single-purpose building architecture limit areas' abilities to change over time.

SR 436 Interstate 4 station area access

Horatio CSX station area access

Alignment selection influences station development opportunities

Interstate alignment limits development opportunity around stations

Environmental Goal

How do the alternative route options affect the environment? Specifically, this goal evaluates both environmental impacts and cultural / historic impacts, as well as the air quality impacts of each alternative. Orlando's air quality is worsening. In 1998, Orlando experienced non-attainment levels in air quality 6 times. Orlando is expected to be a non-attainment city within the next two years. The worsening of air quality may limit Federal transportation dollars.

Each alternative will be measured to ensure there are no historic and cultural fatal flaws

Each alignment analysis will evaluate for enviromental fatal flaws

Investment Goal

What is the cost effectiveness of each route option? Three measures quantify the cost effectiveness of alternative transit routes.

Capital Cost - The total capital cost of each alternative measures an alternative's affordability. Due to the preliminary level of analysis, capital costs within 5% are considered equivalent.

Operation and Maintenance Cost - This measure quantifies the annual requirements of labor and maintenance for each alternative.

Transportation Options - The Orlando region is developing into a sophisticated urban form with numerous urban districts and a balanced transportation system. This measure of effectiveness assesses each alternative's ability to integrate into the regional transportation system. A balanced transportation system's success is measured by the mobility options offered to the regional population. The goal of this system is to distribute transportation alternative evenly throughout the region rather than concentrate all alternatives into single corridors.

Mobility Goal

Do alternative route options enhance the mobility of the region? Four evaluation measures quantify regional mobility improvements.

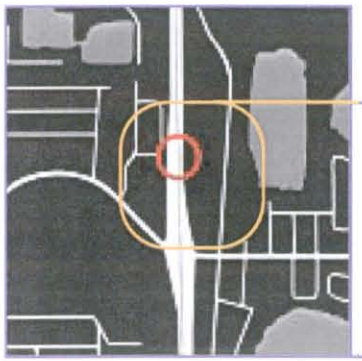
Accessibility - This evaluation measures the accessibility of stations on alternative alignments. The total number of travel lanes serving each station determines the quality of vehicular access to each station. Stations located within traditional interconnected street networks generally have improved access over those located on limited street networks.

Travel Time - The speed of the train is a measure of the viability of transit as an alternative to the automobile. However, the travel time of the train alone does not measure the overall quality of transit service. The total trip time of each alternative is the issue. The time required of each alternative to travel from the trip origin to the transit system, the time required riding the train, and then time needed to reach the final destination should be calculated.

Ridership - Ridership forecasts measure the number of customers expected to the system.

Shared alignment on International Drive increase travel time and ridership

14 travel lanes serve the proposed downtown Sanford station



4 travel lanes serve the proposed Lee Road station

"This train station is about the public, is about our citizens; it is about using our train station to attract people to our downtown community."

- James McGreevey, Mayor, Woodbridge Township, New Jersey

ROLE OF STATIONS

Train stations were historically the focal point of economic and social activity for many Central Florida communities. The rail depot was the most important building in town, linking local communities to the world and becoming the center of daily life. The LYNX light rail stations will be no different. The light rail system and transit stations will provide the citizens of Central Florida a new transportation alternative linking the destinations of daily activity.

Chruch Street Station, early 1900's

The LYNX light rail transit system will allow individuals an alternative transportation mode designed to complement existing mobility options established by the automobile, the LYNX bus network, and bicycling. Light rail stations will function as mobility portals; acting as the entry and exit points to the community including the Orlando International Airport, downtown Orlando, International Drive and the Orange County Convention Center, and the University of Central Florida.

STATION TYPES

Many elements contribute to the environment surrounding each station including land use, architectural character, and natural amenities. Station type refers to the environment in which each station is situated. LYNX light rail stations can be categorized into four types: Neighborhood Commercial, Town Center, Activity Center/Central Business District, and Interstate.

South Street LRT Station

Neighborhood Commercial Stations

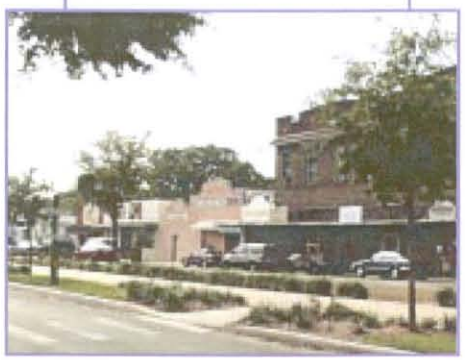
Many stations will be located in neighborhood commercial centers and within walking distance to surrounding residential neighborhoods. Special attention will be given to the design of these stations to ensure that the character of surrounding neighborhoods is preserved. Neighborhood commercial stations will be small in size and provide pedestrian and vehicular access that respects the neighborhood setting.

Ivanhoe Row commercial district

Town Center Stations

Local town centers such as Kissimmee, Sanford, and Winter Garden represent a diverse mix of residential, commercial, and civic uses. These Central Florida town centers are highly valued for their historic buildings, mix of uses, and pedestrian atmosphere. The light rail stations can be integrated in many different ways to fit within these environments. Town center stations will vary in scale, visibility, and function, supporting existing development or acting as a catalyst for new development.

Downtown Winter Garden, Florida



Activity Center/Central Business District Stations

Downtown Orlando, International Drive, University of Central Florida, and other regional activity centers provide the setting for a range of dynamic stations. Activity center stations generate high customer usage due to the range and intensity of surrounding land uses. As destination stations, activity center stations serve intense pedestrian-oriented developments. Enhancements at activity center stations should provide opportunities for future development, creating public open spaces, plazas, and squares.

International Drive Resort Area

Interstate Stations

Interstate highways are often used for light rail alignments with stations located within the median of the interstate. The interstate is a hostile environment for transit users and special attention to customer comfort is necessary. Designing sound walls and extended canopies that provide protection from the hostile environment is important. Additionally, interstate station platforms are often separated from direct pedestrian access, bus-transfer facilities and parking areas, complicating convenient access to the station. Interstate stations do however provide unique architectural design opportunities and can serve as signature statements for the LYNX rail system with their high visibility within the highway.

Interstate 4 Station

STATION FUNCTION

Light rail stations serve a variety of functions depending on their role within the LYNX Rail Program. Functions vary from station to station, but fundamentally, the role of the station is to provide a convenient connection between different modes of travel and the light rail system.

Pedestrian Connections

The priority of every station is to facilitate safe and convenient pedestrian access to the light rail system. Like bus transit, rail transit effectiveness is determined by the ability to accommodate pedestrian movement. Quality pedestrian connections will improve the customer experience and facilitate future transit-oriented development around each station.

Pedestrain Access to Light Rail Boston, MA

Bus Connections

It is important to maintain quality connections between the LYNX bus network and the light rail system. Many stations will be served directly by the bus network with integrated transfer facilities designed to conveniently get customers to and from buses and light rail trains. At other stations, bus facilities will be smaller in scale accommodating customers through existing on-street bus stops with convenient pedestrian connections to each station.

Vehicle Connections

Most stations will provide some form of vehicular access, ranging from small kiss and ride (drop-off and pick-up) facilities to mixed use park and ride structures. The amount of parking will vary depending on the role of each station in the LYNX Rail Program. The design of parking facilities will balance the site constraints of the urban setting with the demand for parking generated by the station. Station area design should locate parking facilities to minimize impacts on surrounding properties and maximize development opportunities around each station.

Park and Ride Station Cleveland, Ohio

Bicycle - Bus Interface Orlando, Florida

Bicycle Connections

Bicycle travel accommodates sixteen times the travel distance possible by foot. The added distance that bicycle travel allows can often fill the gap between the end of a bus route and a customer's ultimate destination. Improving bicycle access and providing bicycle storage opportunities at light rail stations will strengthen bicycle travel as a feeder travel option to transit stations.

Bus - Light rail Interface Portland, Oregon

STATION CONFIGURATION

LYNX will employ low-floor technology light rail vehicles. Access to the trains will be provided by end-loaded 14" high, 100% accessible, platforms. Three basic platform configurations will allow LYNX customers access to the light rail system: center, side, and split. At-grade or aerial, the functional requirements of each station will be determined from peak loading characteristics generated by transit customers at each station.

Center Platform Stations

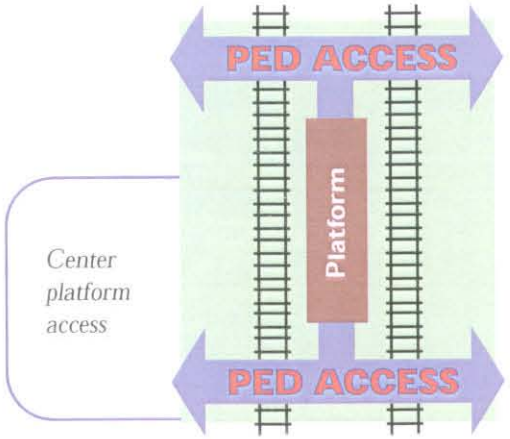
The center platform station is the most coustomer friendly and cost-effective platform configuration. This configuration utilizes a single center platform to distribute passengers to and from rail vehicles. The center platfrom allows transit customers to board light rail vehicles traveling in either direction from a single location.

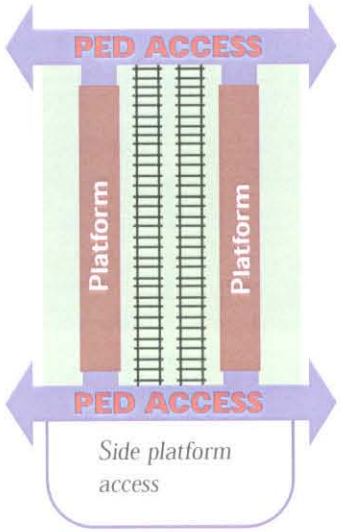
Side Platform Stations

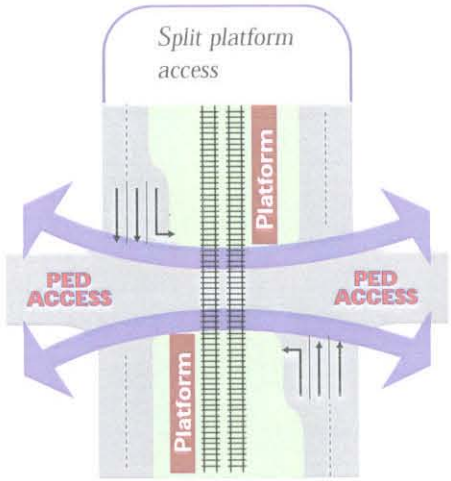
The side platform configuration is often used to accommodate large volumes of customers. This configuration utilizes two platforms to distribute passengers to rail vehicles, one platform for each direction of travel.

Split Platform Stations

Split platform configuration is often located at the intersection of streets within the median. This configuration minimizes the right-of-way necessary for the station by locating platforms opposite of left turn lanes. Like the side platform configuration, two platforms are utilized to distribute passengers to rail vehicles, one in each direction.







STATION FORM

Station form refers to the physical structure and right-of-way configuration of a light rail station.

On-Street Stations

Light rail stations can be located in the median or along the outside edge of streets. On-street stations are appropriate in a variety of urban settings including activity centers, commercial corridors, and residential neighborhoods. In each setting, on-street stations are designed to minimize impacts on adjacent traffic while enhancing pedestrian street activity.

On-street station, Dallas, Texas

Off-Street Stations

Light rail stations can also be located off-street to accommodate future development or large station programs. These stations are generally designed at-grade to minimize cost and maximize accessibility. Off-street stations can be designed to support a variety of development patterns from mixed-use retail and commercial centers to traditionally designed residential neighborhoods. In each setting, off-street station programs can be designed to complement an existing development or provide a focal point for future development.

Off-street station Portland, Oregon

Rail Corridor Stations

Many Central Florida communities have developed around rail stations. The new light rail stations, designed carefully, have the opportunity to enhance these successful town centers. Transit stations can enhance access to town centers like Winter Garden, Maitland, and Kissimmee or provide the focal point for new development in town centers like Sanford, Longwood, and Lake Mary. Many LYNX light rail stations will be located within an existing rail corridor. These stations will be designed at-grade and integrated with the surrounding environment. Pedestrian access to these stations will occur at established pedestrian crossings.

Rail corridor station Dallas, Texas

Interstate Stations

Interstate stations are located in and share the median of interstate highways and are isolated from surrounding land uses. Pedestrian access and customer comfort is a critical design challenge to LYNX. The architecture of interstate stations presents a unique opportunity to design signature stations for the LYNX Rail Program with interstate exposure.

Interstate station concept

Aerial station, Monterrey, Mexico

Aerial Stations

Aerial stations are elevated above ground and are often designated for areas with narrow right-of-way, severe traffic congestion, and limited pedestrian street activity. Aerial stations are highly visible complex architectural structures that provide enhanced, grade-separated, travel speeds for the rail system. These stations should be designed in a manner that contributes to both the function and form of the surrounding community.

STATION AREA DESIGN

"At Pleasant Hill, one disembarks the train to find an entirely new suburban community: one with a mix of housing, offices, and shops, all huddled around the transit station with a street configuration and landscaping that encourage people to walk."

Robert Cervero - University of California, Berkeley

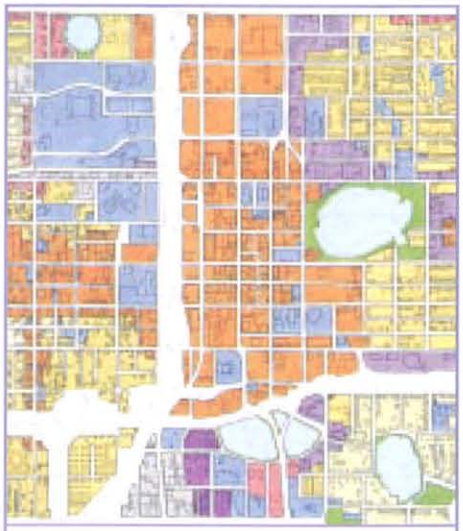
The long-term success of the light rail system will be dependent on its ability to be integrated into the community. The urban design plan for each station area will guide and direct future growth and development by recognizing the influence light rail will have on the immediate area and identifying opportunities for transit-oriented development. The urban design plan demonstrates how light rail will be implemented, building on an understanding of each community's objectives. In the short-term the urban design plan guides the design of each station outlining how the station will functionally coexist with the surrounding properties. In the long-term the urban design plan sets a vision for future transit-oriented growth in the region that is refined and implemented through coordination with local jurisdictions, potential developers, and LYNX.

Context Design Research

Understanding the physical context of each community allows unique and positive characteristics to be identified. This context analysis involves mapping the variety of physical characteristics around each station area including local materials, urban design features, and significant buildings.

Urban Design Plan

The urban design plan demonstrates how light rail will be implemented, building on an understanding of each community and its objectives for light rail. This plan forms the foundation from which, working together, the community and LYNX will guide the development of light rail.



Downtown Orlando land use pattern

Downtown Orlando urban design plan

Station Plan

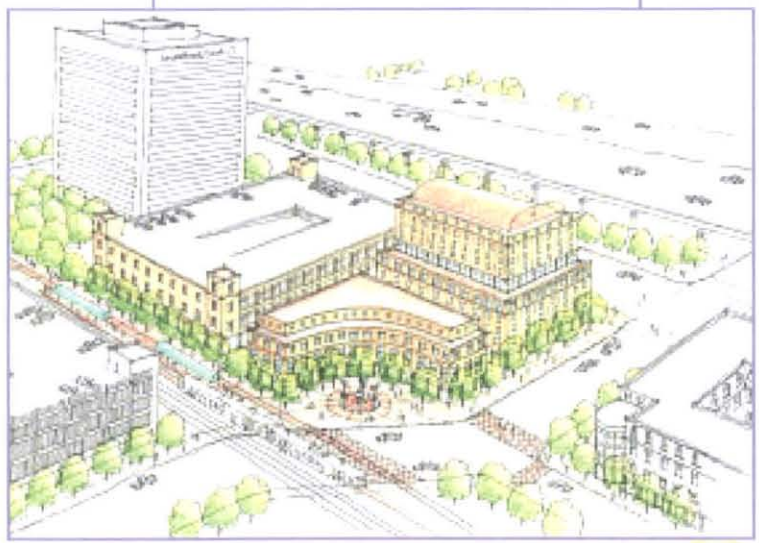
The station plan is a detailed illustration of how the functional requirements of a transit station will fit into the community. Each station plan is an extension of the urban design plan, outlining how the station will functionally coexist with surrounding properties and how future growth will be accommodated.

Washington Street station plan

Implementation

The final step is to implement the community's vision for light rail. In the short term, the station plan is developed and constructed with the light rail line. In the long term, the urban design plan is refined and implemented through coordination with local jurisdictions, potential developers, and LYNX.

Washington Street station implementation vision



CONTEXT DESIGN RESEARCH

Context analysis and mapping is developed relative to the fundamental issues that guide the integration of the transit stations into local communities. The context maps are constructed to reveal the community specific characteristics pertaining to transportation, land use, and community resources.

View from Washington Street to Lake Eola Orlando, Florida

Downtown Orlando, Florida

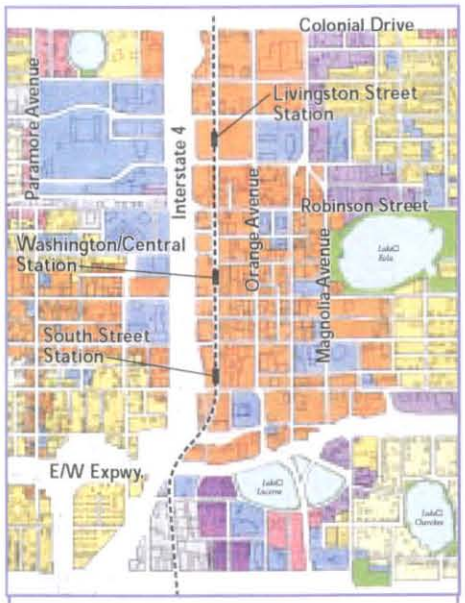
Transportation

The road network map outlines the local traffic circulation and road hierarchy. The integration of the light rail system must complement and adapt to the traffic patterns of each community.

Downtown Orlando transportation pattern

Land Use

The land use map outlines the future land use of the area as defined by the local community. The light rail system and stations must respect local land use patterns while maximizing opportunities for future transit accessible development.



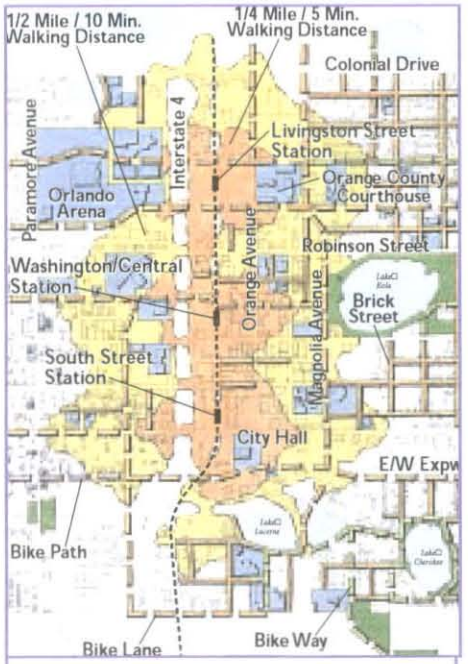
Downtown Orlando land use pattern

Gertrude's Walk Orlando, Florida

View down Gertrude's Walk Orlando, Florida

Community Resources

The community resources map identifies the network of local resources that includes parks, schools, lakes, recreational trails, and other civic institutions. A successful light rail system will minimize impacts to these facilities while providing increased public access to them.



Downtown Orlando community resources

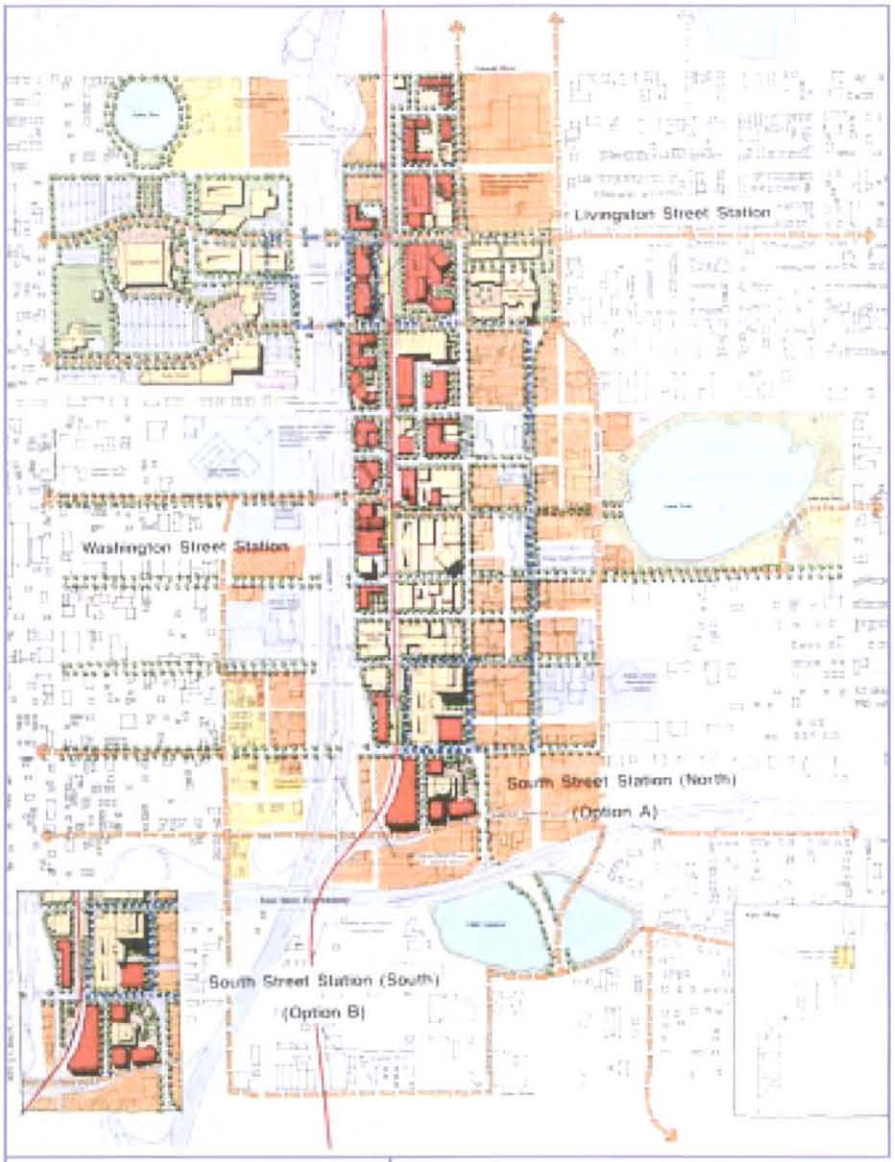
URBAN DESIGN PLAN

Crafted with a unique understanding of each comunity, the urban design plans illustrate a design resolution that integrates the station with the local transportation network, land use patterns, and community resources.

Transportation

Critical to successful station area urban design is integrating a diverse range of travel modes. The location and design of stations should establish accessible connections to local bicycle routes, pedestrian pathways, feeder bus routes, and local roads.

- Safe and accessible pedestrian connections should be made to the station. Critical sidewalk, streetscape, and crosswalk connections should be constructed to improve accessibility.
- A clear and direct interface should be established for feeder bus routes, passenger drop-off areas, and park and ride areas. The location and design of this interface should take into account the local road network and traffic patterns.
- Accessible connections to the local bicycle network should be established from the station. Where appropriate, new network segments should be created to extend the bicycle network and increase access to the station.



Downtown Orlando urban design plan

Land Use

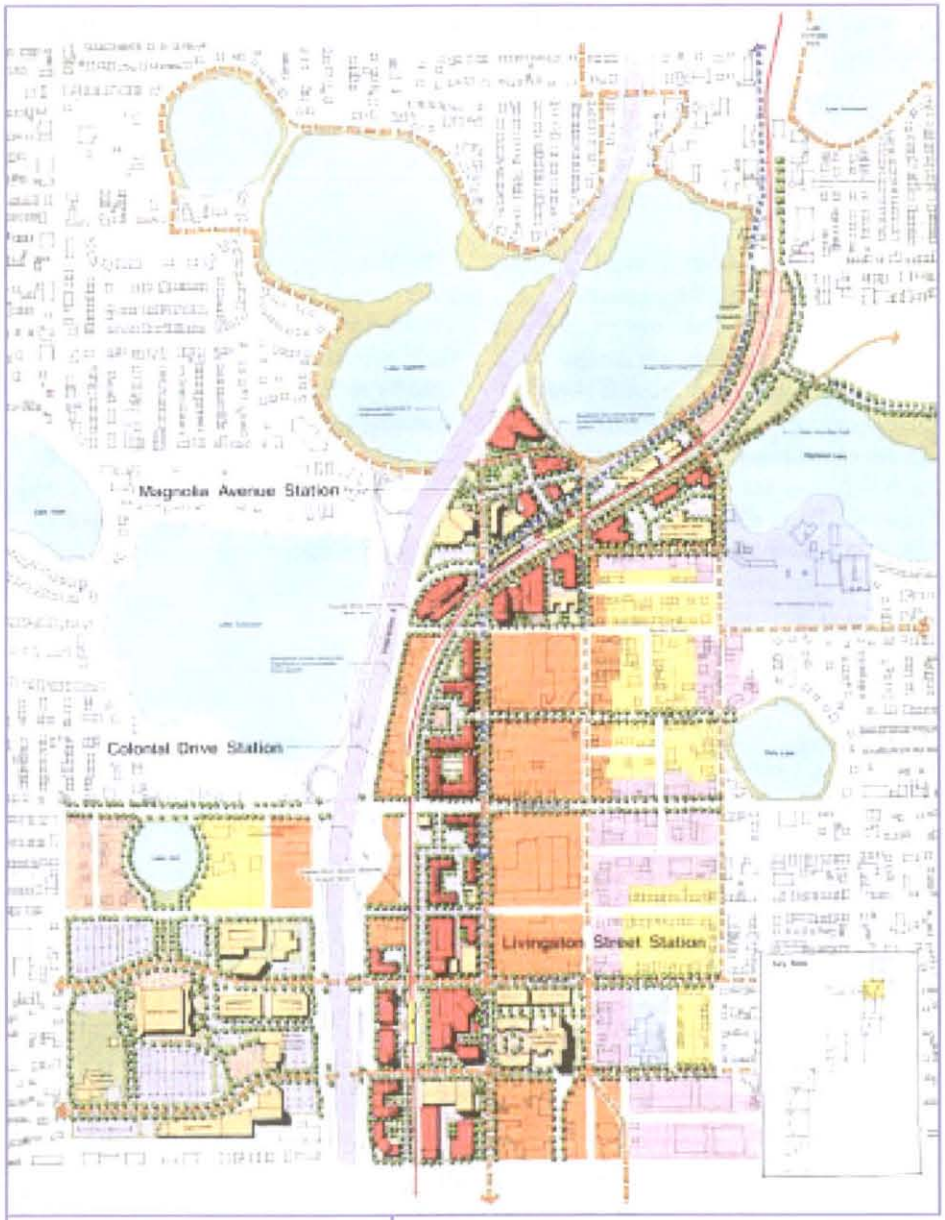
Stations should relate and respond to the surrounding land uses, density, and local pattern of development. Care should be taken to seamlessly integrate stations with the patterns of use and density of each individual community.

- Stations should respond to the future land use and development guidelines established by each community.
- While respecting local development objectives, the station design should enhance opportunities to create development that can take advantage of transit station access.
- Joint use development should be compatible with existing and future development within the station area.

Community Resources

Station area planning and design should serve to protect and enhance community identity and character. Special attention should be given to establishing links to adjacent schools, parks, and community institutions. The design, scale, and character of community resources should be reflected in the design of stations.

- Views and connections from cultural features, landmarks, and parks should be established whenever possible.
- Significant natural features such as lakes, rivers, and wetlands should be preserved and enhanced when affected by station development.
- Station design and layout should reinforce the style and development pattern of the local area and neighborhood. Public art, signs, landscaping, and architectural treatment should reflect community character.
- The station plan is a detailed extension of the urban design plan, illustrating the specific design features of the station including the station platform, sidewalks, landscaping, and public plazas.



North downtown Orlando urban design plan

STATION PLAN

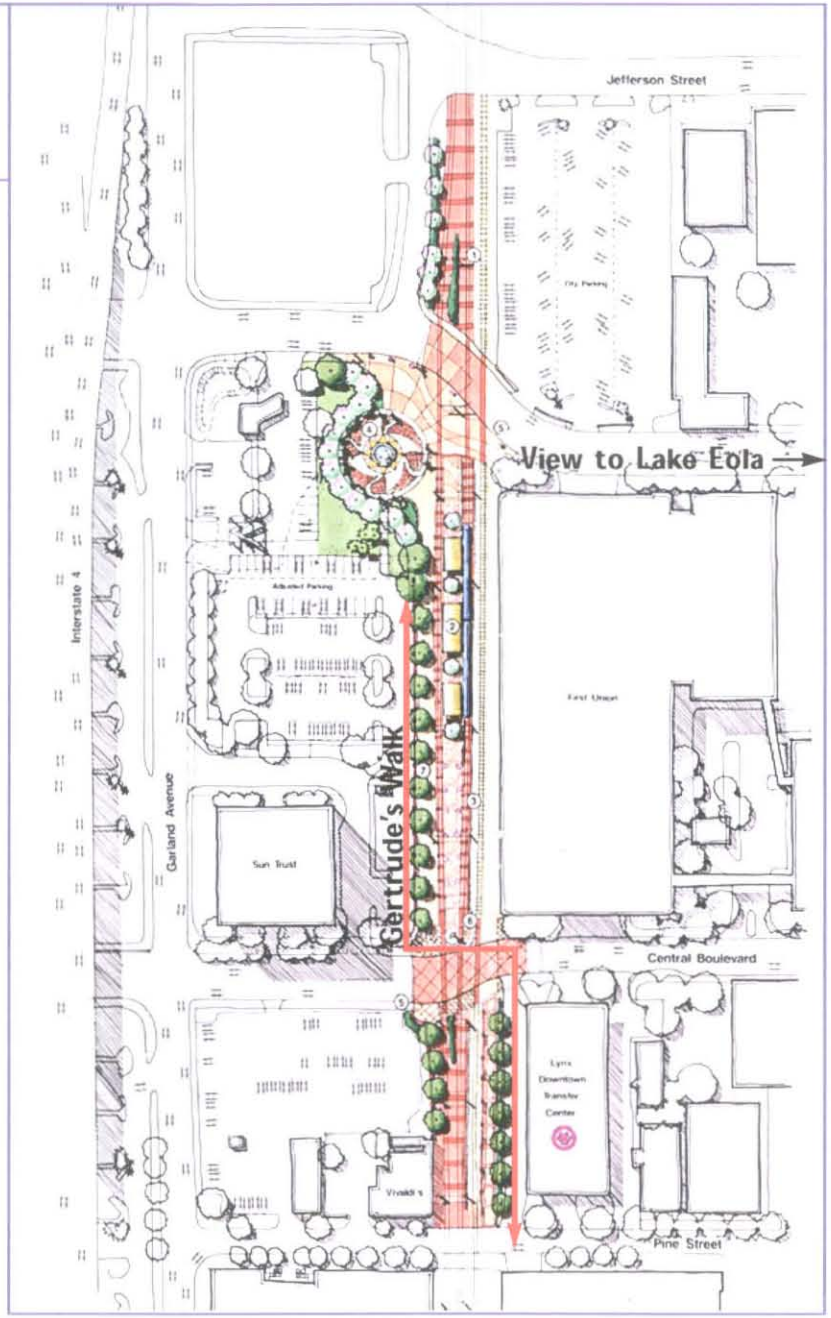
Case Study: Washington Street Station

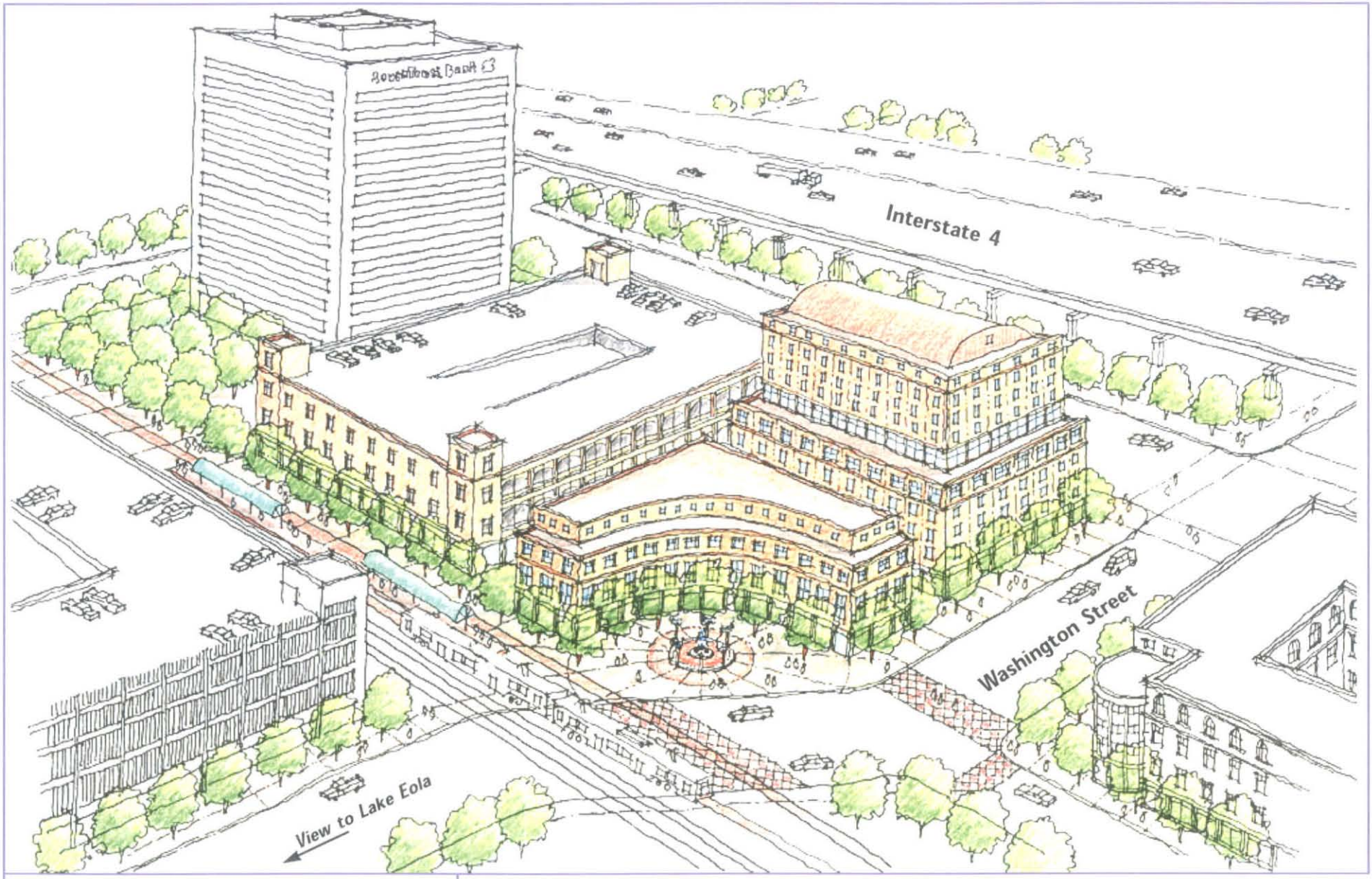
The Washington Street Station, part of the rail program's initial segment, illustrates how the urban design plan informs the detailed station design. Analysis of downtown Orlando revealed the opportunity to create a strong connection between the rail system and Lake Eola; the premier public park in Orlando. From the station, Washington Street aligns on axis with the Lake Eola Park and fountain. The station plaza serves as an extension of Lake Eola Park, creating a direct and strong connection between the park and light rail system.

The Washington Street Station also incorporates the extension of "Gertrude's Walk", an historic downtown pedestrian path, accommodating it as a pedestrian walk from Central Boulevard north to the Washington Street Station plaza. Creating an attractive new public space with direct access to regional transit will serve as a catalyst for new development around the station.

View of Gertrude's Walk at Washington Station

Washington Street station plan





Washington Street station area implementation vision

Case Study: Rio Grande Avenue Station

The Rio Grande Avenue Station represents unique opportunities for station area joint development and urban design. The station is located adjacent to a large tract of available and vacant property. The urban design plan proposes the development of this property into a series of blocks that accommodates a neighborhood park and commercial space in addition to the necessary park and ride lot and bus transfer area. In creating a mix of land uses, the Rio Grande Avenue Station complements and respects the pattern of the surrounding neighborhood and integrates the light rail station into the fabric of the community.

Road network

Land use

Community facilities

Urban design plan

Rio Grande Avenue station plan

Rio Grande Avenue station implementation vision

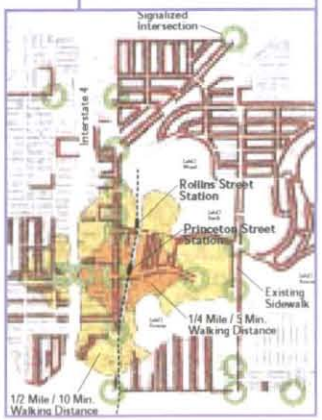
Case Study: Princeton Street Station

The Princeton Street Station illustrates the effectiveness of coordinating station design with long-term development opportunities. The station plan includes a park and ride lot that LYNX can redevelop over time to incorporate mixed use development and structured parking. The urban design plan illustrated this redevelopment showing new development built close to the street on new pedestrian-scaled blocks. Both the station plan and urban design plan include a public plaza adjacent to the station platform along Princeton Street, enhancing the "public infrastructure" of the area and providing a focal point for new development.

Urban design plan

Station plan

Sidewalk network



Land use

Community facilities

Princeton Street station area implementation vision

IMPLEMENTATION

The urban design plan illustrates a long-term vision that reflects community involvement and basic urban design guidelines. The plan provides a blueprint for future action and decision-making that will need to be adapted to market realities and implementation strategies. Ultimately, a balance will be struck between the needs of the community, local government, and the development market. The long-term development around each station will require a range of implementation strategies, including incentives to encourage development, regulations to ensure minimum standards are met, guidelines for implementing quality development, and public investment to support and encourage new development. In addition, LYNX may participate as a partner with private or other public organizations to jointly develop sites adjacent to rail stations.

Regulations

A range of regulations will ensure that development around the light rail stations meets minimum standards. Comprehensive plans set goals, objectives, and policies for specific issues such as land use and transportation. These plans should be reviewed and updated to ensure that land uses, and the intensity of use, is appropriate adjacent to the light rail stations and system; these updates should consider the additional mobility provided by the LRT system. Land development codes and zoning, set use-specific development regulations including setback, height, and density, regulating the basic physical design standards of development. An overlay district is one tool used to create area specific guidelines around transit stations, leaving intact the underlying zoning regulations. The overlay district would include regulations that enhance pedestrian-friendly characteristics, protect local identity, and even provide incentives for development.

Guidelines/Incentives

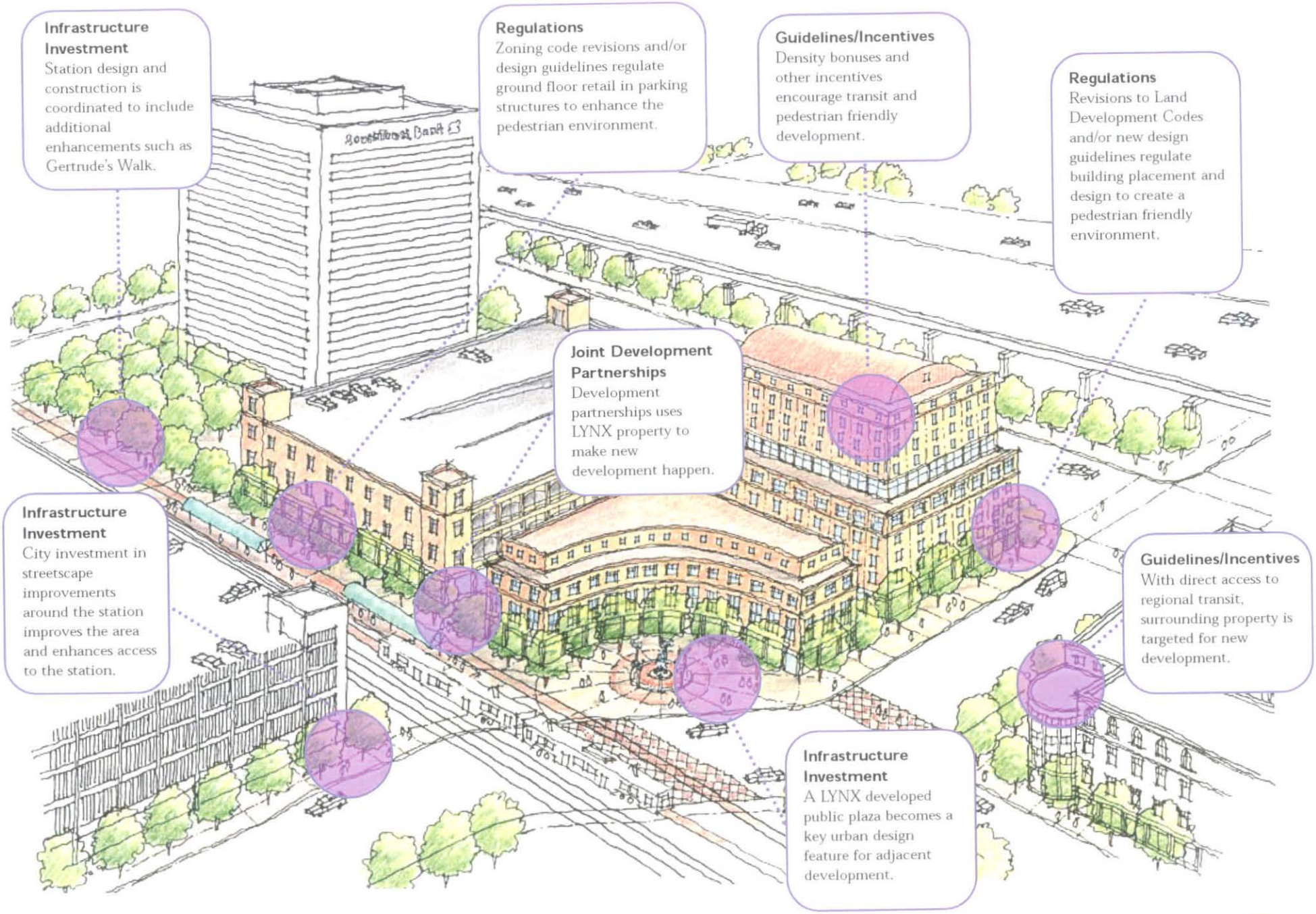
The light rail guidelines outlined in this manual show how development can go beyond the minimum standards to ensure that new development will create pedestrian and transit-friendly environments. While many public and private developers will use these guidelines to take full advantage of the LRT access, local jurisdictions may provide incentives to encourage all development to exceed the minimum standards. Examples of incentives include reductions in parking requirements, credits for impact fees, and density bonuses for appropriate uses and design.

Infrastructure Investment

Development will be motivated to occur where improved services have been provided. Street and utility improvements are examples of projects local governments can identify, fund, and construct. As LYNX develops and constructs the stations, rail-related improvements such as public plazas, police substations, and streetscape improvements will all help enhance the "infrastructure" of the area and attract new development.

Joint Development Partnerships

The Federal Transit Administration (FTA), through its Policy on Transit Joint Development, encourages transit systems to play an active role in transit-oriented joint development projects. Under this policy, LYNX has the ability to use federal grant funds to support joint development projects. For example, surface parking lots and transit facilities may, over time, be redeveloped as needs change. LYNX can leverage their property holdings to develop partnerships with developers who can provide capital and additional land to make projects viable. LYNX may issue a request for proposal (RFP) that seeks out potential developers and tests the marketability of a project. The selected developer would then develop the land in accordance with the guidelines LYNX and local jurisdictions establish.


Infrastructure Investment
Station design and construction is coordinated to include additional enhancements such as Gertrude's Walk.
Regulations
Zoning code revisions and/or design guidelines regulate ground floor retail in parking structures to enhance the pedestrian environment.
Guidelines/Incentives
Density bonuses and other incentives encourage transit and pedestrian friendly development.
Regulations
Revisions to Land Development Codes and/or new design guidelines regulate building placement and design to create a pedestrian friendly environment.
Joint Development Partnerships
Development partnerships uses LYNX property to make new development happen.
Infrastructure Investment
City investment in streetscape improvements around the station improves the area and enhances access to the station.
Guidelines/Incentives
With direct access to regional transit, surrounding property is targeted for new development.
Infrastructure Investment
A LYNX developed public plaza becomes a key urban design feature for adjacent development.

References

1 US Census Bureau 2001-2005 Population Projections Metropolitan Areas. 1995.

2 Metroplan Orlando, Orlando Urban Area Transportation Study. 1996.

3 Schrank, David and Lomax, Tim: Texas Transportation Institute. Urban Roadway Congestion Annual Report 1998.

4 G.B. Arrington, Jr. Director Strategic Planning Tri-Met, "At Work in the Field of Dreams, Light Rail and Smart Growth in Portland". September 1998.

5 G.B. Arrington, Jr. Director Strategic Planning Tri-Met, "At Work in the Field of Dreams, Light Rail and Smart Growth in Portland". September 1998.

6 G.B. Arrington, Jr. Director Strategic Planning Tri-Met, "At Work in the Field of Dreams, Light Rail and Smart Growth in Portland". September 1998.

7 Tri-County Metropolitan Transportation District, "Planning and Design for Transit" : Tri-Met 1993.

8 Tri-County Metropolitan Transportation District, "Planning and Design for Transit" : Tri-Met 1993

9 Orlando - Orange County Convention and Visitor's Bureau "1997 Domestic Leisure Visitor Profile Executive Summary". 1997.

Bibliography

Transit Cooperative Research Program, *The Role of Transit in Creating Livable Metropolitan Communities*, TCRP Report 22. National Academy Press © 1997.

Morrish, William R. and Brown, Catherine R., *Planning to Stay: Learning to See the Physical Features of Your Neighborhood.* Milkweed Editions, 1994.

New Jersey Transit, *Planning for Transit – Friendly Land Use: A Handbook for New Jersey Communities.* June 1994.

Metro 2000, *MetroRail Station Planning Workbook: Transportation Choices in the 90's* Seattle Gannett DeLeuw, Arai/Jackson Architects and Planners, May 1991..

Transit Facility Implementation

Private or public entities planning redevelopment or capital improvements affecting LYNX routes or facilities should contact LYNX at the earliest opportunity to discuss the implication of the transit planning and amenity guidelines.

Facility Development

Planning Manager
LYNX Planning and Development Department
(407) 841-2279

Customer Amenities

Questions or comments regarding LYNX passenger amenities:

Implementation

Planning Manager
LYNX Planning and Development Department
(407) 841-2279

Maintenance

Maintenance Manager
LYNX Operations Department
(407) 841-2279

Programs

Questions or comments regarding LYNX programs:

ADA Compliance

Supervisor of A+ Link
LYNX A+ Link Department
(407) 841-2279

Advertising & Sponsorship

Director of Marketing
LYNX Marketing Department
(407) 841-2279

Questions or comments regarding LYNX LRT Initiatives:

Planning	Director of Planning and Development LYNX Planning and Development Department (407) 841-2279
Engineering and Construction	Director of Engineering LYNX Construction and Engineering Department (407) 841-2279
Joint Development	Director of Planning and Development LYNX Planning and Development Department (407) 841-2279
Art in Public Places	Director of Marketing LYNX Marketing Department (407) 841-2279
Future Service Plans	Supervisor of Service Planning LYNX Planning and Development Department (407) 841-2279
Bus Operations	Director of Operations LYNX Operations Department (407) 841-2279
VanPlan & AutoMates Information	Manager of Mobility Assistance Program Mobility Assistance Department (407) 841-2279

LYNX CONTACT NUMBERS

Route & Schedule Information	Lynx Customer Service Line LYNX Operations Department Orange County (407) 841-8240 Seminole County (407) 628-2897 Osceola County (407) 348-7518 TDD (407) 423-0787
Service Suggestions	Customer Relations Coordinator LYNX Operations Department (407) 841-2279 x 3530 or LYNX Line To Record Ideas 800-344-LYNX
Lynx Web Site	www.golynx.com
Light Rail Web Site	www.golynxlrt.com