Central Florida Mobility Design Manual

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Central Florida Mobility Design Manual



Central Florida Regional Transportation Authority

Prepared for LYNX, The Central Florida Transportation Authority by Glatting Jackson Kercher Anglin Lopez Rinehart, Inc. in association with Herbert Halback and Associates, Inc. 1994 / 1995 edition

Revised by LYNX, 2000

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introduction

Central Florida, in its third decade after the opening of Walt Disney World, is evolving into a sophisticated urban area, offering an expanded job base and an increasingly interesting palette of activities. With most of its growth still ahead, the region is projected to nearly double its residential population from 1.2 million people to 2.1 million people by the year 2020. Employment is also expected to grow from its present 600,000 jobs to over one million jobs in Orange, Osceola, and Seminole Counties in that same period. Central Florida is well on its way to becoming a region of prominence.

The challenge to community leaders is preparing the region for this explosive growth. Planners must ensure there will be a sustainable balance between the livability of Central Florida's many strong neighborhoods and the region's projected dynamic economic base. The form of the urban area will focus on intensely developed, job-based activity centers bound together by a balanced transportation system where walking, biking and riding transit are valued in providing viable means of transportation. This will not be easy.

Transportation planning should evolve from its focus of the last 20 years, devoted to getting people from all over the world to Central



Florida, to planning for the movement of these visitors around the region once they are here. Mobility within

the metropolitan area for residents and visitors is a significant part of the challenge in Central Florida's preparation for the next century. LYNX is ready for the challenge.



introduction





Comprehensive plans from communities throughout the three-county LYNX service area all anticipate that LYNX transit will become an increasingly important part of the region's mobility. LYNX's evolution reflects the region's increasing reliance on transit in providing regional mobility. LYNX, formerly Tri-County Transit, has evolved from an infant transit agency with 25 buses in 1972, to become the Central Florida Regional Transportation Authority (CFRTA) with over 210 buses and plans of having in excess of 280 buses and 15+ miles of LRT system by 2013.

Today, LYNX is the fastest growing transportation system in America, providing fixed-route bus service, van pools, car pools, special door-to-door transportation for customers who cannot use regular bus service, and travel planning services. Now merged with the CFRTA, LYNX has the mandate to operate regional rail transit and to sponsor initiatives for a dedicated funding source for expanded transit service of all types.

LYNX Ridership trends . . . carrying our share



introduction

As LYNX begins to realize its goal of serving as a major provider of mobility in the region, it becomes important to understand the opportunities for partnerships between LYNX and the land development community. LYNX service can be greatly enhanced by using a wide range of simple, common-sense actions in the design of new growth and redevelopment projects. At the same time, the value of new growth and redevelopment, to it's occupants and the community at large, can be greatly enhanced through the provision of LYNX mobility.

In this partnership, the physical design of each new growth and redevelopment project will need to successfully promote walking, biking, transit and the automobile as viable partners in a balanced transportation system.

To achieve this vision, architects, planners, landscape architects, engineers, developers and community officials will need to plan and implement sustainable developments where land use planning and physical design features are integrated with the technical requirements of each mode of transportation.

This manual is a definitive statement of the actions needed to successfully integrate the physical design of independent projects into comprehensive sustainable communities that are served by a balanced transportation system. The Central Florida Mobility Design Manual is intended to be a working document illustrating basic mobility design actions to be considered at the design and review level of individual projects. The mobility actions present basic planning and design guidelines which are the foundation of a strategy that can influence the form of new growth and redevelopment in Central Florida.



A Sustainable Development

As defined in 1987 by the UN Commission on Environment and Development, "Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs."

Sustainable transportation systems must ensure that future generations of Central Floridians will enjoy the same quality of life to which we aspire today.

Mobility Design Elements

pedestrian circulation Pedestrian improvements are the most exploitable means for increasing the number of potential riders and increasing LYNX's effective service area.

bicycle circulation Intermodal planning of bicycle facilities with transit facilities will increase the effective service area of transit and allow vehicular traffic to operate more efficiently.

vehicular circulation Designing streets and roadways for all users will enable walking, biking and riding transit to be viable partners in a balanced transportation system.

transit circulation The physical design of new growth and redevelopment projects can provide LYNX with direct cost-effective service.

transit stops and terminals Transit stops, the most visible element of the LYNX system, directly influence the ability of LYNX to be successful in providing alternative forms of transportation.

building location Building location, in coordination with pedestrian planning, is the most common land use planning tool available in catering to a balanced transportation system.

building design Building architecture and design greatly influence the quality and operation of pedestrian, bicycle, transit and vehicular transportation systems. The design manual is divided into two sections. The first section introduces basic design guidelines and functional requirements which illustrate how the physical design features of a project can help balance the overall transportation network. This includes pedestrian circulation, bicycle circulation, vehicular circulation, transit circulation, transit stops and terminals, building location, and building design.

The final section of the design manual demonstrates how specific guidelines for each design element can be successfully integrated into a comprehensive development review process. This section also documents the importance of revising transportation elements and land development regulations, and additional revisions to concurrency requirements, design standards, impact fees, and incentive programs that will ensure effective implementation of the mobility design guidelines.



Pedestrian / Transit Relationship

A balanced transportation system is dependent on walking as the single transportation mode that begins each trip, links different modes of transportation, and completes each trip. A transit system's effectiveness is determined by its ability to accommodate pedestrian movement. In surveys around the country, individuals who do not ride transit reported that it is not convenient to their needs. Many times, walking distance and the quality of the walking environment en route to transit service influence the convenience of the service. Better pedestrian system design can improve the convenience of transit service and encourage alternative modes of transportation.

Distance Walked

"Walking is the most convenient means of transportation up to 500 yards. But as distances increase, the car, bus or bike become more attractive. The present desire to walk in America is depicted by a steep tapered curve with most people (70%) willing to walk 500 feet, (40%) willing to walk 1,000 feet, and tapering off until (10%) are willing to walk a half-mile."

Source: Untermann: "Accommodating the Pedestrian," 1984





Good Community Planning Focuses On Walking as an essential mode of transportation and as the basic building block of developing a balanced transportation system.

Every attempt should be made by planners and designers to improve the walking experience to make it more safe, convenient, and attractive.

Link Neighboring Communities

Linking subdivisions with pedestrian connections will facilitate movements that were once only possible by automobile.



intermodal note

Good pedestrian planning can make transit more convenient by shortening the time needed to walk to a bus.



Provide Linkages For All Pedestrian Movements

Improved internal pedestrian circulation is a fundamental element of a "park once" environment, where individuals can comfortably walk between buildings and not consider using the automobile for trips other than for their arrival and departure.





Link Adjacent Land Uses

Often, the only pedestrian connection to neighboring land uses is along the street, many times discouraging pedestrian activity. Planners and designers should provide direct pedestrian linkages to neighboring land uses without requiring use of the street. This will significantly shorten walking distances and encourage a pedestrian atmosphere.



EXISTING

PREFERRED

Provide Pedestrian Access To Street

Providing multiple points of pedestrian access to the street will encourage pedestrian activity. For example, on South Orange Blossom Trail, an interconnected pedestrian network helped create a festive and more highly used pedestrian area.

Image: Constrained and Biotel Linkages

Design Direct Pedestrian Routes

Many times, pedestrian paths and connections are circuitous and indirect. Circuitous routes considerably lengthen the actual walking distances for pedestrians, discouraging pedestrian activity. Pedestrian paths should provide the most direct and convenient routes possible.



graphic source: A Guide to Land Use and Public Transportation, Snohomish County Transportation Authority, 1988.







Simple pedestrian "break-outs" through subdivision walls will increase resident mobility and transit accessibility.

Curb Cuts

Curb cut ramps are used to allow the elderly and handicapped access to the pedestrian network. These ramps should be comprehensively interwoven into the pedestrian network and provided at all intersections and pedestrian crossings. Ramps must, at a minimum, be 36 inches wide (excluding slope) and must not exceed a one-inch rise for every 12 inches of run (1:12 ratio). In areas where 48 inches is not available behind each curb-cut, both the ramp and flared sides must not exceed the 1:12 rise-to-run ratio.

יי48

Max. 1:12 grade for both ramp and flared sides CROSSWALK CROSS ADA Approved Street Crossing











Improve Pedestrian Environment



Clearly Delineate Pedestrian Paths Through Parking Lots

Most everyone walks through parking lots; automobile drivers, pedestrians, and transit riders all traverse an environment designed for cars. Planners and designers should provide clearly delineated paths through parking lots to safely accommodate pedestrian activity.





Buffer Sidewalk With Landscaping Or Parked Cars

"Factors that encourage people to walk are often subtle, but focus upon the creation of a pleasant environment for the pedestrian. The streetscape can influence the number of individuals willing to walk. People don't feel comfortable walking in a wide open area with busy traffic passing close by. Pedestrians are, instead, drawn to streets with a feeling of safety and comfort. This feeling can be created by locating buildings close to the sidewalks, by lining trees along the street, or by buffering the sidewalk with landscaping or parked cars." (Untermann, 1984)

Design Pedestrian Facilities For All Users Public Sidewalks

Public sidewalks should be wide enough to accommodate the volume and type of pedestrian traffic expected in the area and should be provided on both sides of all urban area roadways. All sidewalks should be designed to have a minimum width of 5 feet (the minimum width that will allow two wheelchairs to pass one another). Sidewalks located on the street curbs should have a minimum width of 6 feet.

Sidewalks and pedestrian facilities should be designed to cater to the needs of the disabled and elderly. Curbs and stairways can be formidable barriers to those in wheelchairs or for whom walking is difficult. The Americans with Disabilities Act (ADA) provides specifications to help overcome such barriers to mobility.

Refer to the ADA Handbook for more details.





Off Curb

On Curb

Pedestrian Overpasses and Underpasses

Overpasses and underpasses are generally unsuccessful in directing pedestrians off the street and are not recommended. However, in cases where overpasses and underpasses are necessary, the ADA requirements include a 1:12 rise-to-run ratio with 5-foot rest areas at least every 30 feet.

ADA Approved Ramp Design

Graphic Source: Accommodating The Pedestrian: Adapting Towns And Neighborhoods for Walking and Bicycling, Van Nostrand Reinhold Co., New York, 1984

ADA Approved Stairway Designs

	Maximum Rise		Maximum Horizontal Projection	
Slope	In	mm	Ft	m
1:12 to 1:16	30	760	30	9
l:16 to 1:20	30	760	40	12

bicycle circulation

Interconnect Bicycle Network With Transit Network

Interconnecting bicycle facilities within the LYNX system can be a major element in improving low-density suburban public transportation. Improving bicycle linkages and promoting "bike-and-ride" is among the most cost-effective approaches to increasing ridership available to LYNX. "Bike-and-ride" travel involves a traveler's use of a bicycle in combination with public transit. Improving bicycle access to LYNX routes and improving bicycle storage at LYNX terminals can make transit more convenient. Bicycles provide a strong feeder mode for premium transit. The potential travelshed of a bicycle fills gaps provided by a feeder bus service.

Bicycles provide an alternative form of transportation which effectively quadruples the speed and provides sixteen times the coverage area of non-motorized travel. Early consideration in the community planning process and effective facility design will promote the bicycle as a viable transportation mode in a balanced transportation system.

Economic Note

Although automobiles and bicycles are both important modes for transit access in low density areas, the cost of park-and-ride facilities is far higher than bike-and-ride facilities.

Pedestrian, Feeder Bus, and Bicycle Travelshed (9 Mph x 10 Minutes Riding Time)

Design Bicycle Facilities to Functional Standards

Safe, convenient and adequate facilities are essential to encourage bicycle riding as a valuable part of a balanced transportation system. This design manual is intended to present sound guidelines that assist in developing a sustainable community with a transportation system sensitive to the needs of bicyclists and other forms of transportation. The following definitions of bicycle facilities and functional standards are from the American Association of State Highway Transportation Officials Bicycle Facilities Guidebook.

Bicycle Facility Definitions:

Bicycle Lane:

A portion of a roadway which has been designated by striping, signage and pavement marking for the preferential or exclusive use of bicyclists.

Bicycle Route:

A segment of a system of bikeways, paths, and lanes with appropriate directional and informational markers.

Bicycle Path:

A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way.

Bikeway:

Any road, path, or way which in some manner is specifically designated as being open to bicycle travel, whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

bicycle circulation

Bicycle Lanes

Bicycle lanes are a portion of a roadway which has been designated for the preferential or exclusive use of the bicycle. Sidewalks are not encouraged as substitutes for bicycle lanes. In Gainesville, Florida, for example, bicycle lanes were developed to discourage cyclists from using sidewalks; thus bicycle related accidents were reduced by 80%. Consult the State of Florida Department of Transportation's Bicycle Facilities Planning and Design Manual when designing bicycle lanes.

Provide Adequate Bicycle Storage Facilities

Local jurisdictions within Central Florida are encouraged to establish minimum bicycle parking requirements. The provision of adequate bicycle parking facili-

ties is dependent on understanding the number of bicyclists using particular land uses. Bicycle use may differ from city to city. The following is an example of bicycle parking standards employed by the City of

Gainesville. Specific requirements should be developed individually within each local jurisdiction.

City of Gainesville Bicycle Parking Standards

Bicycle Paths

Bicycle Paths: Bicycle paths are facilities on exclusive rights-of-way with minimal cross flow by motor vehicles. Similar to highways for the automobile, bicycle paths are intended for the exclusive or preferential use of bicycles. Not to be confused with sidewalks, bicycle paths should not be immediately adjacent to streets and highways. Consult the State of Florida Department of Transportation's Bicycle Facilities Planning and Design Manual when designing bicycle paths.

Provide Clear Bicycle Facility Signage

Bicycle facilities should be identified by signs to properly indicate the beginning and end of bike routes and location of bicycle parking areas. When developing bicycle signage, precise specifications can be found in the Federal Highway Administration's Manual on Uniform Traffic Control Devices.

Provide Multiple Bicycle Routes

The provision for multiple bicycle routes allows higher percentages of the population access to safe, alternative modes of transportation, including LYNX.

Origin Destination

Design Direct Bicycle Routes

Bicycle routes should provide the most direct and convenient service possible.

vehicular circulation

Interconnect Street System

New developments should provide street connections for vehicles in all major directions to and from a site. It should also connect to existing neighborhoods, as well as anticipated neighboring development with street dedications or interim "stub-outs".

As development matures, street connections will evolve into a complete street system, providing a high level of mobility and greatly adding to the value of the served properties.

The mobility provided by a completed street system offers the opportunity to eventually route transit directly through a series of communities, serving more residents and providing more convenient service.

Complete street systems bring all travel origins and destinations closer together, reducing driving time and sometimes turning driving trips into walking, or bicycle trips. Trips to/from a LYNX stop, regardless of their means (driving, walking or bicycling), are shorter and more convenient. Winter Park, like most of the highly-valued locations in the Orlando region, has a complete, well-connected street system. The benefits of the street layout assist in

enhancing property values and desirability of these places.

Community Planners Integrate The Needs of

the automobile with the needs of transit, walking, bicycling, and livable neighborhoods into the design of vehicular circulation systems. This integration provides a complete, well-connected street system; the ability to expand the street system as the community grows; and detailed street designs that make them usable for all types of travel.

Design Streets For All Users

Throughout Central Florida, there are numerous examples of streets that serve vehicular traffic as well as walkers, bicyclists and LYNX riders. The quality of some of these streets was inherited from an earlier era of neighborhood design; the quality of others was recently built into new development. Having a wide variety of street design features can be implemented as a way to make streets usable for all travel. These measures, variously termed "Neighborhood Traffic Control", "Traffic Calming" or "Livable Streets", have certain key elements in common: they slow vehicle speeds, provide drivers with "reminders" of other users, and buffer pedestrians from traffic flow.

vehicular circulation

The Orange Avenue streetscape narrowed the street, widened the sidewalks, and became a cornerstone of Downtown Orlando redevelopment.

This gateway with brick-paved "slow point" on Cottontail Drive in Maitland, built by the City and a private homeowner, slows down traffic and reminds drivers that they are passing through a valued neighborhood.

Brick-paved streets throughout Central Florida add greatly to the special quality of each community, while at the same time reduce vehicle speeds and improve the pedestrian atmosphere.

vehicular circulation

This "bulb-out" in Downtown Sanford alerts drivers that they are sharing the roadway with pedestrians while shortening the walking distance for pedestrians crossing the street.

This streetscape treatment on Parramore Avenue slows traffic by narrowing the street, making it more "business-friendly".

Bus "pull-outs" are used throughout Central Florida to facilitate traffic flow when LYNX buses need extended dwell time at bus stops for transfers and scheduling.

transit circulation

Design For Direct Transit Access To Community Centers

The transit circulation for new projects should provide for direct LYNX service to the center of the proposed community. Direct routing through the center of a community, rather than around the periphery, is preferred in order to maximize coverage and minimize the distance traveled.

direct central routing

indirect routing

direct but peripheral routing

Effective Community

Planning promotes the development of a successful transit system. Design measures should be implemented to allow transit convenient access to community centers, provide for direct transit routes, locate stops on streets, allow for convenient extensions of existing transit routes, and design routes to be functionally adequate for transit vehicle use.

LYNX service to the center of a community benefits new development through the provision of added mobility.

Provide More Direct Transit Routes

Direct transit routes reduce the operational cost of providing LYNX service.

Circuitous routes increase the number of revenue miles and revenue hours. Therefore, developments which provide for direct routing will allow more efficient, and less expensive, transit service. Monies saved because of direct routing then may be used to increase the frequency of headways, providing a higher quality service to LYNX riders.

With direct transit routing, incremental extensions can be provided to existing routes without restructuring or substantially revising service. Continuously restructuring or revising existing LYNX routes to accommodate new development can discourage existing riders from using the LYNX system. LYNX riders must be confident that individual routes will consistently serve their travel needs. Early consultation with LYNX staff will help ensure future transit circulation is consistent with existing LYNX service.

VS.

Designing new developments which require indirect service and backtracking increases the cost of operating a transit route and adds inconvenient delays to existing transit riders.

Something To Think About...

Creating an environment conducive to a direct transit system will reduce time required to walk to transit, as well as reduce time required riding transit. Direct routing could increase headway frequency and reduce time required waiting for transit.Creating an environment

conducive to a direct transit system will reduce time required to walk to transit, as well as reduce time required riding transit. Direct routing could increase headway frequency and reduce time required waiting for transit.

INDIRECT: • Redundant Service • Higher Vehicle Miles • Higher Vehicle Hours

MORE DIRECT: • Less Redundant Service • Lower Vehicle Miles • Lower Vehicle Hours

transit circulation

Locate Transit Stops On Streets

The location of transit stops on streets greatly influences the efficiency and attractiveness of LYNX service. Transit stops should be located to increase running speed and reduce needless route diversions. Transit stop location should not require buses to "backtrack" or provide indirect service. Transit stops should be located on the street (where possible) so as to eliminate significant diversions that decrease running speed, such as getting delayed in the peak period congestion of parking areas.

Service off the street often requires LYNX bus vehicles to make left hand turns to a proposed transit stop. These turns are difficult and time-consuming. Unnecessary left hand turns often delay buses and add operation costs.

off-street stop

on-street stop

Design Sites To Be Functionally Adequate For Transit Use

Creating an environment conducive to the development of a balanced transportation system requires the circulation system to be engineered to the functional requirement of LYNX vehicles. Designing for the functional requirements of LYNX vehicles means creating suitable facilities in which LYNX vehicles can operate properly and passengers can wait in comfort.

Bus Turning Template

Understanding the turning radius of LYNX vehicles will allow designers to easily accommodate bus movement.

NOTE:

• The diagram should be considered minimum for a standard LYNX bus.

• Radii of 55' (outside) and 25' (inside) are recommended for pavement edges or obstructions.

• Articulated buses can be accommodated within the above envelope.

NOTE:

To maintain sight distance, only low plantings are recommended in island areas.
30' lane width assumes no parking in loop area.

Bus Vehicle Dimensions

Vehicle dimensions are used to establish minimum functional standards. Dimensions illustrated in this manual represent the largest vehicles within each bus classification.

Vertical and Horizontal Clearances for Buses

27 foot minimum inside radius, 30 foot desirable

Transit Facility Dimensional Requirements

Bus turnouts are used to facilitate traffic flow when LYNX buses need extended layover time for transfers and scheduling. Add 50 feet for each additional bus expected to use the stop at the same time. While turnouts are advantageous to traffic circulation, turnouts make it difficult for LYNX buses to reenter traffic. Contact LYNX Planning Department on an individual project basis.

Intersection Design for Bus Turns

Design Transit Architecture To Be Noticed

The transit stop may be the first image passengers have of the LYNX transit system. These facilities will also be an important piece of the urban, commercial, and neighborhood environments. The style of LYNX mobility stations should be indicative of the land use; and orient the rider within the community.

The intensity of the land use shall dictate the extent of the stations' bold qualities. The architecture of LYNX transit facilities should be easily recognizable as gateways into the Central Florida mobility system. This will provide the riders, and potential future riders, the confidence and security of a well-defined, identifiable system.

Successful Transit Stop

Design directly influences LYNX's ability to be successful in providing an important alternative travel mode in a balanced transportation system. Good community planning integrates effective layout and design concepts into the development of transit stops and terminals to increase the operating efficiency and attractiveness of LYNX service.

Personal Space Criteria

Design Bus Stops To Functional Standards

In addition to the functional and operational standards of the LYNX buses, mobility stations need to respond to passenger design criteria to ensure access and convenience to as many people as possible. All mobility stations shall be accessible by physically challenged persons. These requirements pertain not only within the actual structures but include efforts to provide circulation connections to adjacent developments. This effort will require coordination with local governments, developers, and adjacent property owners to achieve success. The mobility stations should provide transit service and route information.

"Quad" Shelters with Optional Seating Arrangements

"Double" shelters with Optional Seating Arrangements

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2' derti

Provide Transit Service and Route Information For Riders

All LYNX mobility stations shall be identified with the LYNX "paw" transit sign and corresponding route numbers. The LYNX telephone number should also be included for people seeking other transit information. For sheltered stations, route maps and schedules, community information, and activity centers should be clearly presented where possible.

Provide Amenities For Pedestrians

Passenger comfort and convenience is critical to the success of a transit stop. Comfortable waiting areas should be designed to provide the appropriate level of amenities for each stop type. The design of all passenger amenities should reflect the LYNX-like bold graphic qualities suitable to the land use location. Each stop and its associated amenities is described in detail in the Customer Amenities Manual (available from LYNX).

Only the higher volume stops will necessitate structures and a higher level of passenger amenities. Of primary concern is the identification of the transit stop and route number. Seating elements are also beneficial, but in Central Florida the most desired amenity is shelter. The LYNX shelter system provides passenger comfort through a series of structures that can be configured to respond to specific site and program requirements. All LYNX stations should be accessible from adjacent development by barrier-free paved walks. Convenience and safety are paramount concerns for LYNX mobility stations.

Provide Sheltered Bicycle Storage

LYNX can tap into the potentially large market of "bike-and-ride" commuters by simply providing bicycle storage areas at the appropriate stops. Bicycle storage may range from the necessity of a secure rack to the added benefit of overhead cover. By providing safe and weather protected bicycle storage, LYNX can access the growing number of bicyclists in Central Florida.

Summary Of Bus Stop Features

A specific hierarchy of transit stops exists within the LYNX system and these are based on the number of daily passengers and the number of routes served. Each of the five types of mobility stations are currently located within a certain land use classification, with some types present in more than one category. The type of land use creates a natural hierarchy in determining which facilities should be developed. The station types are the local transit stop, primary local stop, superstop, transit center, and park-and-ride lot. These stations are located in residential, commercial, entertainment areas, urban core areas, and special district land uses.

Local Transit Stop An access point serving primarily residential areas and generating the minimum specific rider boarding volume; occasionally used.

Primary Local Transit Stop

Access points that receive regular use several times a day. Stops may be located in all land use types. The higher frequency of use dictates additional passenger amenities.

Superstop

Access points serving as a hybrid between the primary local stop and the transit center providing amenities found at a transit center. Superstops should serve as neighborhood focal points and community centers.

They will be located near parks, activity centers, schools, government centers and shopping centers. Superstops are facilities with a focus on community and commercial conveniences in residential and mixeduse land types.

Transit/Intermodal Center

A base for the regional transit network of local circulator service, express routes, and other modes of transportation. These centers operate specifically as easy transfer points between transportation modes and transit. Transit/Intermodal centers focus on service in major activity centers which are themselves the focus of extensive local services. Transit/Intermodal centers will occur in commercial or mixed-use land use types. Neighborhood parks may also be associated with or integral to the transit center.

Park-and-Ride Lot

System access points located in outlying suburban areas, where heavily used traffic arteries converge. The normal flow of traffic from a commuter shed can be intercepted along the predominate path toward major employment destinations. (Park-and-ride lots may occur in three areas: residential areas, such as planned unit developments, churches, libraries, meeting halls, parks, etc.; commercial land uses; and adjacent to transportation major corridors. These facilities may be combined with transit center operations.)

Put Buildings Closer To Street

This simple, highly effective measure reduces the walking distance from the LYNX stop. Parking, unchanged in quantity but rearranged in layout, is as accessible as before, but not as visible. Over time, development forms a continuous streetfront that restores the pedestrian atmosphere to the street.

Put Part Of Building Close To Street

When adding to strip commercial, bring the building extensions to the street, so that part of the building "fronts" on the street. Rearranged parking continues to be as convenient as before, but less visible.

Source: Guidelines for Public Transit in Small Communities, Small Communities Branch, Urban Transit Authority, British Columbia, (Sept. 1980)

building location

Building Location Is One Of The Most Powerful Tools

that community planners use to create pedestrian atmosphere. Proper location of buildings reduces walking distance, the single most controllable obstacle to riding LYNX, and helps create an environment capable of being served by a balanced transportation system.

building location

Why Is It So Important ?

Walking time is a large part of the average LYNX trip, and riders are keenly aware of the time so spent. Fortunately, walking time is one of the most flexible elements of LYNX travel time, and can be improved by small, inexpensive actions on the part of new development. Reducing walking time is far more effective than trying to reduce wait times (which calls for many more buses) or raising running speeds (requiring an almost-impossible increase in overall traffic speeds).

In many valued business districts, like this one in Downtown Winter Park, businesses are located close to the street. This is a major indication that the area is a person-friendly development; furthermore, it creates a pleasant walking environment.

building location

Connect Buildings to Streets

Complements LYNX Service: Short, Pleasant Walks.

Harmful to LYNX Service: Long, Unfriendly Walks.

building location

The Evolution Of A Commercial Strip

1 The first LYNXfriendly buildings are "stepping stones" in a street still dominated by vehicles. The walking experience improves, owing to the occasional "oasis" along the sidewalk.

2 More LYNX-friendly developments start to form a continuous streetfront. Walking becomes interesting.

3 Finally, a solid, LYNX-friendly zone evolves. People come just to walk and enjoy the scene.

Fill Corners

Fill corners with attractive, lively retail uses, such as fast food, convenience shopping and services.

Cluster Buildings On Multi-Building Sites

Cluster buildings on multi-building sites, either along a short pedestrian spine or around a single focal point surrounding the LYNX stop.

building design

Provide Varied And Detailed Building Facades

Detailed building facades generally provide unique visual sequences which focus pedestrian attention on the environmental setting, rather than the walk. The perceived time and length of the walk is shortened.

The visual quality of the trip is important to facilitate pedestrian activities. Two of the most significant barriers to walking are related to distance and time associated with a walking trip. Visual stimulation is important to make walking pleasant for pedestrians. Many studies conducted throughout the country have documented how redundant environmental forms and visual sequences have the ability to extend an individual's perception of time and distance.

Even parking structure facades can be improved for pedestrian activities. These two examples illustrate the difference between an auto-oriented design and a pedestrian-friendly design.

Redundant, Auto-Oriented Facade

Varied, Pedestrian-Friendly Facade

Building Design Plays A Significant Role in

improving the overall pedestrian environment which, in turn, helps create a balanced transportation system. Community planners should make every attempt to ensure building designs shelter pedestrians from the Central Florida weather and enhance the walking experience.

building design

Varied, pedestrian friendly facades promote the concept of a "park once" environment by providing for interesting walks and pedestrian spaces.

Pedestrian Friendly

Auto-Oriented

Residential building facades also influence the quality of pedestrian activities. Auto-oriented residential neighborhoods often do not have sidewalks and diminish the pedestrian experience.

Pedestrian Friendly

building design

Provide Shelter For Pedestrian Circulation

Protection from the weather is an important feature for new development and redevelopment projects to incorporate into pedestrian circulation systems and building design. Unlike drivers and passengers in auto-

mobiles, pedestrians do not have a climate-controlled air conditioning system to protect them from inclement weather. Where possible, building designs should attempt to incorporate awnings, arcades and shelters into facade architecture to protect pedestrians from the rain and sun.

Covered Overhangs Improve Walking Environment

Shelter Pedestrians from Rain and Sun

Incorporate Transit Stops Into Building Architecture

Incorporating transit stops and terminals into building design will eliminate many barriers associated with riding transit. Partnerships with LYNX will increase the accessibility of developments and the desirability of alternative forms of transportation.

how to use the guidelines

Integrate The Mobility Design Guidelines Into the Development Review Process

This manual illustrates definitive actions needed to successfully integrate mobility planning into the physical design of new growth and redevelopment projects. These actions are intended to be used by architects, planners, landscape architects, engineers, local officials, and developers as part of a project's design and development review process. Implementation of these actions will result in an urban form that is well-served by a balanced transportation system.

These LYNX Mobility Design Guidelines focus on several stages of the local planning/development approval process.

The Comprehensive Plan, mandated by State law and maintained by each of the 26 cities/counties in Central Florida, is the foundation of the planning process. All of the comprehensive plans in Central Florida contain strong goals, objectives, and policies that guide the location of new growth, and shape the growth into an urban fabric that is well-served by a balanced transportation system. The LYNX Mobility Design Guidelines are derived from these comprehensive plan goals, objectives, and policies.

Zoning ordinances translate the intent of the comprehensive plans into detailed mapping of permitted land uses. LYNX service and its planned expansions are designed to serve each individual land use.

Subdivision of large parcels into smaller development sites is usually the first step of the land development process. It is guided by local subdivision regulations. Many of the LYNX Mobility Design Guidelines apply at this stage of the process and guide the decisions made by site owners, the developer team members, and public agency staff. **The Site Planning stage** determines most of the physical realities and the appearance of the new development. Building placement, layout of the circulation systems, and parking arrangements are established at this point. The LYNX Mobility Design Guidelines focus on this stage of development and are intended to serve as a further source of design input to new development.

Building Permits and Certificate of Occupancy, the final stages of the development process, assure that new construction meets building codes and that the project can be safely occupied. Some LYNX Mobility Design Guidelines address the technical details of construction typically found at this stage of the process.

Establish A Mobility Design Checklist

When designing and reviewing a project's proposed site plan, architects, planners, landscape architects and engineers must consider and examine many aspects of the project's design and development program. The following mobility checklist should be used by the urban development profession when creating a site plan for individual projects and should be included when local officials review each element of a site plan's submission. Page numbers in the checklist indicate the location of these items discussed in the Mobility Design Manual.

A Mobility Design Checklist for Architects, Planners, Landscape Architects and Engineers

Pedestrian Circulation: Is the site designed to facilitate safe, convenient, and comfortable pedestrian circulation?_____ pp. 2.1-2.5 Does the pedestrian circulation system connect with LYNX service? pg. 2.1 Is the pedestrian circulation system consistent with the Americans with Disabilities Act? pp. 2.6-2.8 **Bicycle Circulation:** Is the site designed to facilitate safe, convenient, and comfortable bicycle circulation? pp. 3.1-3.4 Does the bicycle circulation system connect with LYNX service? pg. 3.1 Are the bicycle circulation system's functional standards consistent with AASHTO recommended standards? __pp. 3.2-3.4 **Vehicular Circulation:** Does the site plan provide for interconnected streets? pg. 4.1 Are the streets designed for the safe interaction of all users? pp. 4.2-4.4 Transit Circulation: Does the transit circulation plan allow for convenient LYNX service? pp. 5.1-5.3 Does the transit circulation plan allow for direct LYNX service? pp. 5.1 - 5.3 Does the transit circulation plan allow for efficient LYNX service? pp 5.1- 5.6 Does the transit circulation system connect with the pedestrian network? pg. 2.1 Does the transit circulation system connect with the bicycle network? pg. 3.1 Transit Stop and Terminal Design: Are the transit stops designed to be noticed? pp. 6.1 - 6.6 Are transit stops designed for pedestrian and bicyclist convenience and comfort? pp. 6.1-6.6 **Building Location:** Does the building's site facilitate pedestrian access? pp. 7.1-7.4 **Building Design:** Is the building's architectural design conducive to pedestrian circulation? pp. 8.1-8.4 Does the building design provide pedestrian levels of detail? pp. 8.1-8.4

Implementation

Central Florida's urban form and physical design have developed from a comprehensive collection of individual development projects within each community. The future will be no different. The challenge for today's public officials and the development community is to create a sustainable, more economically viable, livable community with a balanced transportation system where walking, biking, and transit are as valued as the automobile in providing viable forms of transportation.

Most local jurisdictions throughout Central Florida have adopted land use goals, policies, and objectives in their comprehensive plans to guide growth in creating an urban form that will foster community identity, reduce urban sprawl, and conserve natural resources. This urban form, which calls for the continued development of activity centers, can be well served by a balanced transportation system. However, the realization of these goals has not taken shape because many communities have not had the opportunity to establish effective implementation tools. Effective implementation of local goals, policies, and objectives, calling for reduced sprawl, sustainable development, and more livable community form, require Central Florida communities to fully integrate land use planning with transportation planning. This integration will be accomplished through revisions to comprehensive plans and land development regulations.

Comprehensive Plans

Central Florida communities have long called for sustainable land use patterns in the goals, policies, and objectives in future land use elements. However, these same communities have not had an opportunity to establish equally grand visions for creating a balanced transportation system. This opportunity is now occurring as local governments update their comprehensive plans and develop Transportation Elements.

Transportation Element

Based on legislation passed in 1993, local governments are now required to develop Transportation Elements to integrate a systems approach to transportation planning and future land use planning. The Transportation Element is intended to replace comprehensive plan elements of traffic circulation, mass transit, ports, aviation and related facilities. The purpose of the Transportation Element is to establish a comprehensive transportation policy which allows the creation of a balanced transportation system that will support the sustainable urban form currently envisioned in local government comprehensive plans.

how to use the guidelines

Land Development Regulations

Land development regulations guide the implementation and realization of comprehensive community-wide goals, policies and objectives. There are four specific tools available to local governments to implement local policy: adequate transportation facility regulations, development design standards, transportation impact fee ordinances and incentive programs.

Adequate Transportation Facility Regulations

With the creation of a balanced transportation vision in the Transportation Element, local governments have the opportunity to successfully integrate community wide land use goals with community wide transportation goals. Existing adequate transportation facility regulations (Concurrency Management) should be revised to be consistent with standards established in the Transportation Element. These revisions will include changes in the roadway Level-of-Service (LOS) standards to reflect mobility characteristics.

Development Design Standards

The integration of mobility design guidelines into the design review process is one of many actions needed to create a sustainable, livable community. The mobility design guidelines documented in this manual should be integrated into local development design standards.

Transportation Impact Fee Ordinance

Once local communities update their Comprehensive Plans to include a balanced transportation system within their Transportation Element transportation impact fee ordinances should be revised to be consistent with the Transportation Element. These revisions will require that fees be calculated based on the multimodal transportation plans outlined in the Transportation Element.

Incentive Programs

The successful integration of mobility-friendly principles into land development activity will require a balance between regulations and incentives. This balance can only be accomplished through partnerships between local governments and the development community. Therefore, as local governments update comprehensive plans and land development regulations, both regulations and incentive programs should be implemented to ensure separate independent projects evolve to form the urban fabric envisioned in comprehensive plans.

how to use the guidelines

Public / private partnerships between local governments and the development community can create an urban fabric that is well served by a balanced transportation system.

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 implications of the transit planning & amenity guidelines.

Facility Development

Planning Manager

LYNX Planning and Development Department 407.841.2279 x3007

Passenger Amenities

Questions or comments regarding LYNX passenger amenities:

Implementation

Planning Manager LYNX Planning and Development Department 407.841.2279 x3007

Maintenance

Maintenance Manager LYNX Operations Department 407.841.2279 x3216

Programs

Questions or comments regarding LYNX programs:

ADA Compliance

Supervisor of A+ Link LYNX A+ Link Department 407.841.2279 x3022

Advertising & Sponsorship

Director of Marketing LYNX Marketing Department 407.841.2279 x3041

Art in Public Places

Director of Marketing LYNX Marketing Department 407.841.2279 x3041

Future Service Plans

Manager of Service Planning LYNX Planning and Development Department 407.841.2279 x3567

Bus Operations

Director of Operations LYNX Operations Department 407.841.2279 x3036

Route & Schedule Information

LYNX Customer Service Line Orange County 407.841.8240 Seminole County 407.628.2897 Osceola County 407.348.7518 TDD 407.423.0787

VanPlan & AutoMates Information

Manager of Mobility Assistance Program Business Development Department 407.843.7665

Service Suggestions

Customer Relations Coordinator 407.841.2279 x3705 or LYNX line to record ideas 800-344-LYNX

Joint Development

Director of Planning and Development LYNX Planning and Development Department 407-841-2279 x3050

www.golynx.com

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