



# **LYNX SYSTEM SAFETY PROGRAM PLAN**

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**FINAL**

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# SYSTEM SAFETY PROGRAM PLAN

## 1.0 INTRODUCTION

This System Safety Program Plan (SSPP or Plan) establishes the technical and managerial safety program adopted by the Central Florida Regional Transportation Authority (LYNX or authority) for the public transportation system it operates in the Central Florida region. Transit system services include fixed route buses, paratransit and commuter vanpools. In 1997, a new downtown bus circulator, known as Lymmo, started. The SSPP describes the authority's service philosophy, organization, operations, management and safety program elements.

The SSPP further identifies LYNX safety policy and the responsibilities associated with system safety at all levels of the organization and for all entities or individuals under contract to the authority. The safety program formalized by this plan applies to all life cycle phases for LYNX projects and the transit system.

### 1.1 Safety Definitions

**Safety:** As a basic definition, safety can be defined as: a reasonable degree of freedom from those conditions that can cause injury or death to personnel, damage to or loss of equipment or property.

According to U.S. Military Standard 882C, system safety is the application of technical and managerial skills to the systematic, forward looking identification and control of hazards through the life cycle of a project, program or activity. This process spans the entire system life cycle, beginning with acquisition (including concept definition, design, construction and inspection/testing/certification) and continuing through operation (including training, maintenance, modification, and disposal).

The following are also key terms used throughout this plan: <sup>1</sup>

**Hazard Management:** An element of the system safety management function that evaluates the safety effects of potential hazards considering acceptance, control or elimination of such hazards with respect to expenditure or resources. The feasibility of hazard elimination must be considered in light of financial, legal, and human considerations.

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<sup>1</sup> Instructor Guide: System Safety Planning Seminar, prepared by the U.S. Department of Transportation's Research and Special Programs Administration (Transportation Systems Center, Safety and Security Systems Division) and Urban Mass Transportation Administration Office of Safety, October 1988.

System: A composite of people, procedures and equipment/facilities which are integrated to perform a specific operational task or function within a specific environment.

System Safety: The application of operating, technical and management techniques and principles to the safety aspects of a system throughout its life to reduce hazards to the lowest practical level through the most effective use of available resources.

System Safety Program: The combined tasks and activities of system safety management and system safety engineering that enhance operational effectiveness by satisfying the safety requirements in a timely and cost effective manner through all phases of a system life cycle.

System safety focuses on the prevention of accidents, by eliminating and/or controlling safety hazards in a systematic way. This preventive approach, through the most effective use of resources, will serve to reduce the risks from system hazards to the lowest practical level. Hazards are not accidents. A hazard is any real or potential condition that CAN lead to or cause injury, death, damage to or loss of equipment or property.

For the purpose of this plan, LYNX further defines system safety as the coordinated effort of all departments and personnel, under the direction and guidance of, LYNX Safety, Security and Risk Management Division to:

- Conserve life and property.
- Reduce the frequency of accidents/incidents.
- Reduce the probability of accidents/incidents and injuries.
- Control and minimize the consequences of accidents and incidents which do occur.
- Maintain the safe operation of LYNX services.
- Provide for the operational safety of patrons and LYNX employees.
- Maintain the safety of the general public in contact with the transit system.

Appendix A contains a glossary of terms commonly applied to transit system safety.

## 1.2 Regulatory Requirement/Authority

On May 2, 1972, the Orange-Seminole-Osceola Transportation Authority was created pursuant to a local agreement by and between Orange, Seminole and Osceola counties, the East Central Florida Regional Planning Council and the Florida Department of Transportation.

The state of Florida requires LYNX to develop and implement a System Safety Program Plan that complies with the equipment and operational safety standards in Subsection 341.061 Florida Statutes (Appendix B), as amended, and to inspect all equipment in accordance with minimum state standards contained in Rule Chapter 14-90, Florida Administrative Codes (Appendix C), as amended. The requirements so imposed are also mandated by this SSPP, as are other applicable state and federal laws and local codes, ordinances and regulations that impact transit system safety.

The chief executive officer accepts overall responsibility for safety at LYNX. The chief operating officer and department managers are responsible and accountable for the implementation of the SSPP in their respective areas. However, all LYNX employees are responsible for safety and security, and must carry out their assigned duties in a safe and efficient manner. The Safety, Security and Risk Management Division is responsible for taking a proactive position in supporting LYNX management through identifying hazards and controls for those hazards to ensure the highest degree of safety for LYNX riders and employees. As such, the LYNX Safety, Security and Risk Management Division is designated as bearing the primary responsibility for coordinating implementation of the SSPP and monitoring compliance. Ordinarily, this office reports to the Chief Financial Officer, who reports to the Chief Executive Officer. However, in the event of an identified serious hazard, the LYNX Safety, Security and Risk Management Division will have direct access to the chief executive officer.

### 1.3 Purpose

The purpose of this plan is to establish and document the LYNX System Safety Policy and Program.

Specifically, the purpose of the System Safety Plan is to:

- Establish the safety program on an authority wide basis.
- Provide a framework for implementing a safety program to achieving safety goals and objectives.
- Identify the relationships and responsibilities of LYNX with city and county departments and other organizations and agencies which impact transit system safety.
- Provide a mechanism by which LYNX can demonstrate its commitment to safety.
- Ensure that, as appropriate, contractors and suppliers meet LYNX safety requirements prior to commencing work and while on LYNX property or working on LYNX equipment.
- Satisfy federal, state and local safety requirements.

- Meet or exceed accepted industry safety, fire, and environmental standards.

#### 1.4 Scope

The safety and security goal of LYNX as a transit agency is to create a comprehensive transportation system that offers quality customer service in a safe, secure and cost-effective manner. The SSPP is intended to cover all current and future LYNX operations, services and projects. In order to implement LYNX safety policies, goals and objectives, this Plan:

- Addresses all LYNX departments and contractors.
- Applies to all activities which involve design, construction, procurement, installation and testing of equipment or facilities; operations, maintenance and support activities; and the environment in which the transit system operates, including areas of public access and adjacent property.
- Empowers each chief, manager, supervisor, and employee with responsibility for System Safety Program Plan compliance, implementation and success.
- Requires coordination, integration, communication and cooperation among all departmental managers, supervisors and employees.
- Encompasses all fixed facilities, equipment, vehicles and employee activities and applies to all who come in contact with the transit system.
- Includes LYNX' interface with local, state and federal governmental entities, regulatory agencies and departments, professional organizations and the general public.

#### 1.5 Goals

LYNX has established the following system safety program goals over the next two years (November 2009 through November 2011), all of which are designed for broad relevance throughout the transit system, a lasting impact on safety system wide, quantitative characteristics (observable and measurable), and the agency's ability to effectively achieve them. The agency intends to reduce by at least 10% the following areas of concern:

- The annual rate of accidents that result in injuries or fatalities among passengers or other members of the general public (injuries and fatalities per 100,000 vehicle miles).
- The frequency and severity of on the job injuries to LYNX employees (measurable in hours or days lost per total hours or days worked on an annual basis).

- The rate of accidents/incidents that result in damage to LYNX and public property and equipment (average number of accidents/incidents per 100,000 vehicle miles).
- Claims, replacement and repair costs associated with accidents/incidents that result in damage to LYNX and public property and equipment (average cost per accident/incident).

## 1.6 Objectives

The objectives included here state specifically the manner in which LYNX goals will be met. These objectives are:

- LYNX will establish, implement and maintain a safety program that effectively identifies potential hazards of the transit system and imposes management controls and design requirements to prevent mishaps by either eliminating hazards or reducing the associated risk to an acceptable level for LYNX management.
- Safety is always an integral part of current and future design, procurement, construction, testing, training, operation and maintenance of the LYNX system.
- LYNX operations, including the working environment at all LYNX facilities, will meet or exceed all applicable local, state and federal safety, fire and environmental codes, ordinances and regulations.
- The authority will communicate and cooperate with local government fire and rescue agencies to ensure effective coordination in emergency response, management and corrective action.
- Existing LYNX safety information management systems will provide appropriate data and reports on performance, non critical system failures and accidents to appropriate departments and managers for the purposes of increasing system safety and security.

## 1.7 Update Plan

It will be the responsibility of the LYNX Director of Safety, Security and Risk Management to ensure that the SSPP is reviewed at least annually and maintained in an appropriate and effective manner. The Safety, Security and Risk Management Division is responsible for producing, coordinating and managing this effort.

Revisions to the plan will be necessitated by:

- The request of the CEO or CFO.
- Major system changes or major departmental changes.

- If none of the above conditions has occurred in one calendar year from the previous update and review of the SSPP.

Major changes are defined as those that meet any of the following conditions:

- Addition, deletion or reconfiguration of LYNX operations scope or depth, operating methodology (including the use of contractors for provision of transportation or maintenance), or operating territory.
- Major facility changes, additions or rehabilitation.
- Purchase of new equipment or rolling stock or major overhaul of existing equipment or rolling stock.
- Reorganization of personnel which results in changes in authority or responsibility in any safety critical area of LYNX.

Changes in safety policy, goals or objectives require the approval of the chief financial officer.

## 1.8 Reference Documents

Related documents and guidelines used to develop this SSPP include:

- Manual for the Development of Rail Transit System Safety Program Plans, American Public Transit Association.
- Military Standard 882C, "System Safety Program Requirements".
- LYNX Transportation Development Plan.
- Mass Transit System Safety Glossary, U.S. Department of Transportation, John A. Volpe National Transportation Systems Safety Center.
- "System Safety Program Plan Outline," provided by the U.S. Department of Transportation, Research and Special Programs Administration.
- Bus and Passenger Accident Prevention, by Judith A. Byman and William T. Hathaway, sponsored by the U.S. Department of Transportation and the Federal Transit Administration Office and Technical Assistance and Safety.
- Transit System Security Program Planning Guide, by John N. Balog, Anne N. Schwarz and Bernard C. Doyle, sponsored by the Federal Transit Administration Office of Technical Assistance and Safety.

## 2.0 SYSTEM DESCRIPTION

This chapter of the Plan provides a brief history of the LYNX Transportation system, its operating environment and organizational structure. Also, described are the types of services provided, operational facilities and locations, equipment utilized and basic department organizations and functions.

## 2.1 History

Prior to 1972, the Orlando Transit Company was the principal transit system in the Orlando urban area. When financial difficulties made it impractical to continue providing transit as a private venture, the Orlando Transit Company announced its intention to cease operations. The governments of Orange, Seminole and Osceola counties acted to avert the cessation of service by creating the Orlando-Seminole-Osceola Transportation Authority (OSOTA) in accordance with the Florida Inter-Local Cooperation Act of 1969 (F.S. 163.01). The City of Orlando joined the inter-local agreement in 1981. In 1984, OSOTA adopted the name Tri-County Transit (TCT) as the designated name for the region wide transportation authority.

In July of 1992, the authority began doing business as LYNX although its legal name remained OSOTA. In March of 1994, the merger of LYNX and the Central Florida Commuter Rail Authority (pursuant to F.S. 343.61) created the Central Florida Regional Transportation Authority (CFRTA). The current CFRTA Board of Directors consists of five members: Chairmen from Seminole and Osceola counties (or their designees); The Mayor of Orlando; the Mayor of Orlando (or designee); and the District 5 Florida Department of Transportation Secretary or designee.

## 2.2 Scope of Service

The geographical jurisdiction of the authority encompasses more than 2,500 square miles. LYNX currently provides an assortment of services that includes regular and express fixed route bus services; a downtown circulator known as the "LYMMO"; Paratransit Services (for individuals who are unable to access fixed route bus service because of a disability) known as "ACCESS LINX"; pick up line; vanpooling and other commuting options with the Mobility Assistance Program; and other specialized transportation services (i.e. Road Rangers on Interstate 4).

**Fixed Route Bus:** LYNX currently operates approximately 61 regular fixed routes that link residential areas with major work sites, Downtown Orlando, hospitals and shopping malls. Four (4) routes serve the Orlando International Airport. There are five cross-town routes, four circulators, and one express route.

Most of the routes operate seven days a week with 15 to 60 minute headways, depending on the time of day. Service hours are generally from 4:30 A.M. until 3:05 A.M., varying by route and day of the week.

**Paratransit:** In 1992, the Transportation Disadvantaged Commission designated LYNX as the Community Transportation Coordinator (CTC). In this role, the

authority is responsible for overseeing the provision of transportation services for all people in the tri-country community who cannot provide for their own transportation because of age, income or disability. Known as the ACCESS LYNX Program, LYNX manages a specialized transportation provider coordinating service delivery.

Paratransit service is normally provided from 5:00 A.M. until 1:00 A.M. every day. Reservations can be made between 8:00 A.M. to 5:00 P.M. seven days a week.

LYNX Commuter Van Pool: LYNX currently provides commuter assistance in the form of a van pooling program called the "VanPlan." Building upon increasing interest in the Central Florida area, LYNX is currently expanding its menu of mobility options.

Shuttles: LYNX also operates shuttle buses between Downtown and satellite parking garages, for many entertainment and sporting events held at the Orlando Citrus Bowl and Amway Arena.

Main College Campus Services: LYNX operates student transportation services to the Central Florida's main college campuses, including University of Central Florida, Valencia Community College (East, West, Winter Park, & Osceola Campuses), Rollins College and Seminole Community College. Fixed routes that serve these colleges include – Links 1, 9, 13, 21, 23, 30, 37, 39, and 47.

LYMMO: The LYMMO started operation in August, 1997. The LYMMO project consists of exclusive and multi-use lanes through Downtown Orlando. It uses state of the art, low floor, rubber-tired buses operating frequently along a 3 mile route. The project is comprised of a one way, single lane loop at the north end of downtown (along Alexander Place, Hughey Avenue, Garland Avenue, and Amelia Street) and a two lane spine along Livingston Street and Magnolia Avenue (between Interstate 4 and Church Street). Buses operate in an exclusive contra flow bus lane northbound on Orange Avenue between South and Church Streets. The LYMMO Project replaced the FreeBee bus transportation service for the Downtown area.

LYMMO operates in revenue service from approximately 6:00 A.M. until 10:00 P.M. (for 16 hours) on Monday through Thursday, from 6:00 A.M. until 12:00 midnight (for 18 hours) on Friday; Saturday service from 10:00 A.M. until 12:00 midnight (for 14 hours); and Sunday and Holiday service from 10:00 A.M. until 10:00 P.M (for 12 hours). Buses run approximately every five minutes during business hours. (After hours, buses will run approximately every 10 minutes. Sundays and holidays after 6 PM, buses run every 15 minutes). Hours may change for special events or as demand dictates.

Road Rangers: The Road Rangers Program is a joint venture between the Florida Department of Transportation and LYNX. The I-4 Road Rangers Program provides assistance to stranded motorists with a fleet of 12 trucks that operate 24 hours a day, 7 days a week on the most heavily congested portions of the I-4 corridor. Trucks are equipped with tools and materials for basic repairs and operators have special training in auto maintenance and repair, carry cell phones that can be used by motorists, and follow procedures to ensure that vehicles are safely out of the way of traffic and assistance is on the way. Road Ranges also provide a valuable service in keeping their eyes out for safety problems on the corridor for law enforcement and traffic management.

Pick Up Line: The Pick Up Line is a call first bus service. Customers may travel to and from any location within LYNX' clearly defined Pick Up Line's service area. LYNX operates 7 Pick Up Line service areas. This service is subcontracted.

## 2.3 Organizational Structure

The board of directors establishes policy and directive guidance for the management of the authority while responsibility for day to day activities rests with the chief executive officer. Reporting to the chief executive officer is the, chief administrative officer, chief operating officer, and chief financial officer. The organizational charts in Appendix D show staff positions and the functional reporting relationships.

## 2.4 Physical Plant

Transit service is supported by maintenance facilities, vehicles, bus stops and passenger transfer centers, administrative offices, storage/warehousing, and public right-of-ways through the service area. With LYMMO, the LYNX transit system also will include passenger stations and bus only lanes in the Central Orlando Business district.

### 2.4.1 Facilities

LYNX facilities are designed and maintained to meet applicable federal, state and local safety requirements, such as those of the Occupational Safety and Health Administration (OSHA) and National Fire Codes.

LYNX maintains two primary/main facilities: Lynx Central Station (LCS) and the LYNX Operations Center and a smaller maintenance facility at South Street.

## LYNX Operations Center (LOC)



LYNX primary operations and maintenance facility, opened in 2007, houses the bulk of LYNX's Fleet, the Safety, Security and Risk Management Division, the Training Department and other administrative offices, including human resources. It is located at 2500 LYNX Lane, Orlando, Florida 32804.

## South Street



LYNX has a secondary maintenance facility on a 7.9 acre site near downtown Orlando at the intersection of Orange Blossom Trail and South Street. Some LYNX vehicles are dispatched from this facility at 1200 West South Street. Located on this site are six main buildings, occupied by LYNX since 1974.



### LYNX Central Station (LCS)



The downtown bus station or terminal, which is located between Amelia and Livingston Streets, east of Garland Avenue, is the transfer point for many LYNX bus Links. The terminal contains two covered pedestrian aisles with 24 bus bays and public restrooms. Bus operators also have access to a lounge area. System maps, route schedules, and bus tickets can be obtained at this facility.

Most of the LYNX Administration is also located at this facility, including IT, governmental affairs and communications, finance and administrative support.

## 2.4.2 Vehicles



Safety features of LYNX revenue vehicles meet or exceed federal (USDOT) and state (FDOT) requirements. When appropriate, industry criteria or LYNX transit safety requirements are also imposed in vehicle procurement specifications. Appendix E presents an inventory of the LYNX fleet.

**Buses:** The current bus fleet consists of approximately 278 buses in service of various makes and models. The fleet is 100% diesel-fueled. All of the buses in the active fleet are lift- or ramp-equipped and are wheelchair accessible.



Paratransit and Commuter Vans: LYNX paratransit is operated by a private contractor. Current paratransit service levels require about 132 peak vehicles for ambulatory and wheelchair persons. The entire fleet (153) of paratransit vehicles are stored and maintained by the contractor who operates this service. As of October 2009, 60 commuter vans are in service with eight spares. All LYNX commuter vans have been manufactured by the Ford Corporation, most are 12 passenger vehicles. The Commuter Services Division manages this program and is responsible for offsite maintenance arrangements; LYNX typically stores spares.



## 2.5 Transit Operations and Planning Department

Transit operations may be viewed as the reason for the authority's existence, because its primary function is to provide quality customer services. Transit operations include maintenance, transportation, and paratransit (ACCESS LYNX). The chief operating officer who reports directly to the chief executive officer manages transit operations department. For purposes of this SSPP, the following discussion of department responsibilities focuses primarily upon the Authority's two largest divisions – the transportation and maintenance divisions.

### 2.5.1 Operation Support Division

The Director is responsible for coordinating the efforts of the Safety, Security and Risk Management Division. This office assists the Transportation and Maintenance Divisions. It is the role of the Safety, Security and Risk Management Division to review all safety related programs and procedures to ensure federal and local compliance. This includes, but limited to, environmental safety, driver training, system safety, security, disaster preparedness, employee injuries, and occupational health and industrial safety compliance. The Safety, Security and Risk Management Division will maintain the organization's accident and injury data.

The Safety, Security and Risk Management Division will also assist transportation by monitoring operations, responding to major crashes/incidents, or complaints.

The transportation division reports and processes all accident and safety related incidents. Each department staff assists the Safety, Security and Risk Management Division in accident/incident investigation efforts. Safety data collected by the department include injury claims, damage costs and settlement information. All accident and incident data collected by the division is reviewed and analyzed by the Safety, Security and Risk Management Division.

Operator requirements, normal and special operating procedures are covered in the Operator's Guide to Daily Operations and Work Rules. Transportation supervisory procedures are established in a memorandum to dispatchers and supervisors, from the Deputy Chief of Operations for Transportation, which provides general information, operating procedures, tour assignment overview, tours and radio terminology.

Transportation operations specific to LYMMO are described in that project's Transportation and Maintenance Operations Plan (TMOP) for normal operations, abnormal conditions (e.g., emergencies, foul weather) and special events.

## 2.5.2 Maintenance

The maintenance division is responsible for supporting the transportation division in its service delivery efforts by ensuring that all revenue vehicles, non revenue vehicles and equipment are safe in design and use, highly reliable, clean and available for service.



### 2.5.2.1 Vehicle Maintenance

Prevention is the cornerstone of vehicle maintenance at LYNX, based on an established and effective Preventive Maintenance (PM) program. Preventive vehicle maintenance inspections occur at preprogrammed intervals according to an "A-B-C" schedule.

Corrective maintenance is addressed as a result of defects noted by bus operators, defects found during routine inspections, vehicle failure in service, and accidents. In all cases, risk is assessed and a decision made based on safety criticality to repair immediately or record the repair for the next scheduled maintenance activity. No maintenance is deferred ever on safety critical equipment.

Examples of safety-critical equipment are:

- Brakes
- Fire/life safety equipment (extinguishers, breakdown kits)
- Mirrors

- Door interlocks
- Communication devices

It will be the responsibility of the Safety, Security and Risk Management Division to audit vehicle inspection practices, procedures, and documentation to verify whether department personnel are in compliance with the LYNX System Safety Program.

#### 2.5.2.2 Facilities Maintenance

The goal for LYNX facilities, systems and ground maintenance is to provide a clean, reliable and safe environment for passengers, visitors, employees, contractors and the general public. Corresponding department objectives are to maintain these assets in optimum operating condition so as to ensure safety, reliability and cost effectiveness. Maintenance personnel keep facilities operating optimally and in clean and attractive condition, thereby reducing hazards as well as unnecessary and unbudgeted capital and operating costs to meet these goals.

- The LYNX building and grounds staff and the Capital Planning department are responsible for contracting, maintaining and coordinating with outside contractors on the facility and grounds modifications and upgrades. This function is performed for all LYNX property, entities (e.g., signs, benches, shelters, trash receptacles).

LYMMO: Responsibility for maintenance is shared jointly by LYNX and the City of Orlando. Generally, the city will maintain the bus lanes, traffic control system, Centro-Plex Garage and urban design elements while LYNX will maintain bus shelters, supervisor booths, passenger amenities and communications. Any maintenance work affecting vehicular traffic will be coordinated with LYNX and other agencies, as necessary.

The LYNX customer amenities department will notify the city maintenance department regarding any issues with LYMMO.

- **Signal Control System:** The city also will be responsible for maintaining LYMMO's traffic control signal system, which includes traffic signals, presence detectors and location devices and signal central control.
- **Communications System:** Inspection and maintenance of the communication systems will be the responsibility of LYNX maintenance staff. Whereas actual maintenance will be performed by manufacturers or contractors, LYNX will be responsible for inspection and normal operation of the communication system. The radio system specifications are as follows:

System type - trunk system through Orange County Government  
 Frequencies - total 28  
 Frequency - lower - 857.4750  
 Frequency - higher - 868.8750  
 Portable - (hand held) 81 assigned to various locations through the agency Models - STX 5000, STX 5000 and XTS 1500 (Transportation, maintenance, customer service and training.  
 Mobile (busses) - MCS 2000 option 3, XTL 2500. Every active bus is assigned a mobile radio; the total currently assigned is 269.

Total Radios per Division	
42	= XTL's @ LOC
158	= MCS's @ LOC
14	= XTL's @ OBT
55	= MCS's @ OBT

Repairs are completed by Orange County Radio Services and limited LYNX internal staff. The frequency of repairs is weekly.

Buildings and Grounds: The city will be responsible for maintaining the Centro-Plex Garage. LYNX will be responsible for cleaning, servicing, and repairing passenger stations and the supervisor's booth in the Centro-Plex Garage.

## 2.6 System Modification

LYNX continuously encounters change and modifications to its transit system. The impetus for proposing changes may result from any of a number of sources, such as observations, inspections, data analyses, hazard reports, accident investigations, and internal and external audits. Modifications may be proposed in connection with transit system expansion, as a mean of improving efficiency and performance, or in order to eliminate or control hazards. Regardless of the reasons for changes to a transit system, it is important to assess the potential safety implications of proposed modifications. Tasks applicable to safety in system modification are described in Section 4.0.

## 3.0 SYSTEM SAFETY MANAGEMENT

An effective system safety program benefits everyone.

- An effective safety program results in fewer harmful accidents and incidents.

- Reduced staff injuries and equipment failures translate to improved productivity and system availability.
- System safety provides for improved service through more reliable equipment and cost savings.

Safety is the responsibility of every LYNX system employee.

- The Chief Executive Officer is responsible for providing employees with a safe and healthy work environment and is ultimately responsible for the authority's overall safety program.
- Chiefs, deputy chiefs, deputy directors, directors and managers are responsible for the safety of their departments, including staff, facilities, equipment, operations and services provided. This responsibility involves implementing and enforcing all safety rules and evaluating and correcting hazards. Additionally, they are responsible to coordinate safety related issues and accident information with the Safety, Security and Risk Management Division.
- Supervisors are responsible for the safety of staff, facilities, equipment, operations and services under their supervision. Safety related supervisory actions include routinely discussing with employees, prior to the start of work each day, workplace or operational changes which may affect safety and taking appropriate action in instances where unsafe acts or conditions are reported, observed or otherwise come to their attention.
- Employees are responsible for on the job safety awareness, which means routinely following established rules, procedures, policies and safe work practices. They are responsible for knowing and following all safety and security rules and regulations affecting their position, and ensuring the safety of themselves and others in their work area.

An effective safety program successfully combines management commitment, adequate staff and other resources, credibility, cooperation of all departments and follow up. This chapter defines the safety responsibilities of certain staff and departments, describes how system safety is coordinated among departments, and highlights safety related interactions between LYNX and other agencies.

### 3.1 Organizational Responsibility

It is the responsibility of LYNX chiefs and managers to ensure that all new employees receive orientation and training appropriate to their job tasks and positions. Employees must also receive training in safety, safety culture and specific safety rules, procedures and regulations applicable to them. Chiefs and managers are also responsible for ensuring that training quality assurance is performed so that training programs can be constantly evaluated for effectiveness, and so that employees who are in need of training or retraining

can receive it. In addition, safety responsibilities include ensuring continued safe performance by employees through reinforcement of good behavior and attitudes and a safety assessment during performance evaluations. Other specific safety responsibilities are listed below.

### 3.1.1 Chief Executive Officer

- Direct allocation of available resources as necessary to meet system safety goals and objectives. Monitor and evaluate safety programs.
- Implement LYNX safety policy.
- Provide policy direction to departments.
- Advise in the development of strategies for resolution of major problems.

### 3.1.2 Deputy Chief of Operations-Transportation

- Direct the safety related use of resources available to transportation departments.
- Exercise approved authority for system and equipment design and modification as necessary and in accordance with the SSPP.
- Coordinate safety related activities of transportation departments and ensure that they comply with SSPP requirements.

### 3.1.3 Superintendent of Transportation

- Establish and communicate to transportation employees, the Standard Operating Procedures (SOP) and bulletins for various tasks. Ensure that Transportation staff adheres to SOPs, bulletins, rule and processes set forth in the SSPP.
- Monitor field operations, communications (including the dispatch operations), and training programs for compliance with SSPP requirements.
- Notify appropriate managers and supervisors whenever deviations from established procedures occur or are needed.
- Take appropriate actions to resolve identified hazards in a timely manner.
- Coordinate external safety audits and participation in emergency response plans.

### 3.1.4 Deputy Chief of Operations-Maintenance

- Establish and communicate to the Maintenance employees, the Standard Operating Procedures (SOP) and bulletins for various tasks. Ensure that Maintenance staff adheres to SOPs, bulletins, work rules and processes set forth in the SSPP.

- Monitor facility and vehicles maintenance operations, and training programs for compliance with SSPP requirements.
- Notify appropriate maintenance supervisors whenever deviations from established procedures occur or are needed.
- Ensure new mechanics are properly trained to safety and effectively inspect, maintain and repair the LYNX fleet (maintenance procedures, manuals and instructions). Ensure all maintenance staff is properly trained in emergency procedures and injury and illness prevention.

### 3.1.5 Director, Safety, Security and Risk Management Division

- Establish and chair the Safety, Security and Risk Management Committee with transportation safety, industrial safety, system safety, environmental, and security activities.
- Oversee the activities of the safety and security officers.
- Oversee and review the implementation and management of the LYNX comprehensive safety and health program in accordance with applicable federal, state and local provisions.

### 3.1.6 Safety and Security Officers

- Develop and implement control measures for reducing risk associated with procurement, modification and operation of the transit system. Assist the Risk Manager with risk management and loss prevention programs.
- Assist risk management and human resources staff to review and maintain workers compensation cases and accident reports forms.
- Periodically review current safety standards and guidelines for continuing relevance, especially for transit operation divisions. Formulate and implement new guidelines as necessary or prudent.
- Develop investigate methodology for accident/incident investigations for road supervisors. Conduct accident investigation workshops. Review accidents and make recommendations for corrective actions to prevent recurrence of the same type of accident/incident. Monitor and evaluate corrective actions.
- Oversee safety of service delivery and LYNX facilities and operations. Monitor and oversee that safety/fire inspections have been completed at LYNX facilities. Establish system safety program requirements for contract service providers and vendors; review specifications prior to request for bids.
- Administer safety aspects of claims. Plan and oversee emergency drills and simulations. Schedule and conduct internal and external safety reviews and internal safety audits. Assist the deputy chiefs of

transportation and maintenance in coordinating external safety audits and participate in emergency response plans.

- Oversee the development, implementation and management of the LYNX comprehensive safety and health program in accordance with applicable federal, state and local provisions. Also responsible for developing and enforcing safety related SOPs. Develop and enforce safety and health issues for maintenance employees. Maintain occupational safety and health records.
- Conduct outside inspections relating to buildings, fire alarms, elevators, hazardous material issues, including the storage and dispensing equipment.
- Responsible for building and grounds emergency preparedness plans, and verification that all safety related maintenance procedures are followed.
- Assist risk management in reporting all maintenance accidents/incidents, including workers compensation cases. Investigate and recommend corrective action in all accidents/incidents cases.
- Conduct periodic inspections of all buildings and grounds to ensure compliance with all federal, state and local regulations.
- Develop and implement policies relating to storage, handling and disposal of any material regulated as hazardous by the Department of Environmental Protection.

### 3.1.7 Risk Management

- Develop, implement, coordinate and administer a comprehensive risk management program to include, risk identification, control, evaluation and funding.
- Develop and maintain a company loss prevention program to include facility and equipment inspections, safety surveys and accident investigations.
- Maintain a computer database of accident/incident statistical data analysis. Compile and analyze statistical data relative to accident, compensation and general liability claims. Prepare management reports.
- Administer a self insurance program for worker's compensation and general liability.

### 3.1.8 Supervisor of Training

- Train new bus operators in routes and equipment operation, defensive driving, pre-trip inspection, emergency procedures and injury/illness prevention.
- Ensure bus operators have received the required safety training prior to working in the field.

- Perform in service and retraining following traffic accidents, occupational injuries and as warranted.
- Coordinate with the Safety, Security and Risk Management Division to ensure that LYNX safety policies, rules and procedures, are adequately addressed in the training.

### 3.1.9 Transportation Division

- Assist the Safety, Security and Risk Management Division in investigating accidents and incidents (traffic, passenger and occupational). Take corrective action, including discipline and counseling to prevent or mitigate recurrences. Maintain safety records.
- Take appropriate action(s) to identify, report, and resolve hazards in a timely manner.
- Ensure bus operators are fit for duty.
- Monitor daily operations and schedule with field supervisors and radio dispatch. Reroute buses in response to hazards and emergencies. Direct bus operators during emergencies. Arrange replacement of defective or damaged equipment. Investigate reports of unsafe conditions. Alert emergency response personnel as required by circumstances.
- Assign staff as appropriate to participate in the regularly scheduled Safety, Security and Risk Management Committee meeting. Provide data and other assistance as required.

### 3.1.10 Maintenance Division

- Administer an industrial safety program for division employees.
- Monitor safety compliance of staff, equipment and facilities for safety codes, regulations and policies violations.
- Develop technical equipment specifications and procedures that address the safety requirements of regulatory agencies and LYNX. Ensure that replacement equipment meets safety requirements prior to acceptance. Examine equipment and systems to explore the potential for increased efficiencies and improvements in user and fire safety as well as in performance.
- Assist the Safety, Security and Risk Management Division in the accident/incident investigation and reporting process.
- Monitor the collection and disposal of hazardous waste and materials (e.g., oils, fuel, and clarified waste water sludge) to effectively and safely handle employee and environmental exposure to potentially hazardous and toxic by products.
- Take appropriate action(s) to identify and resolve hazards in a timely manner. As appropriate, develop and test engineering solutions as a means of addressing hazards.

- Assist the Safety, Security and Risk Management Division to develop and implement quality assurance control measures for reducing risk associated with procurement, modification and operation of LYNX equipment and facilities. Monitor procurement practices ensuring that safety is not compromised in replacing parts. Monitor man machine interfaces.

#### 3.1.10.1 Vehicle and Equipment Maintenance

- Ensure safe and reliable vehicles are available for LYNX operations. Perform non scheduled repairs due to accidents. Perform major equipment, rebuild, repair and retrofits.
- Ensure that equipment purchased by LYNX meets safety requirements. Administer warranty programs.
- Perform quality assurance inspection and testing activities necessary to ensure that equipment, supplies and operations result in the desired level of safety. Monitor the performance of preventive maintenance efforts. Stop work on all unauthorized modifications. Analyze equipment failures and identify trends.
- Document equipment modifications and inform the Safety, Security and Risk Management Division of the configuration management changes and modifications.

#### 3.1.10.2 Facilities Maintenance

- Administer/monitor construction contracts to ensure that the contractor's procedures conform to current state and occupational safety and health regulations and that the results are safe for authority and/or public use. Monitor the installation of facilities' systems and equipment to ensure compliance with contractual safety standards and procedures.
- Assist Safety, Security and Risk Management Division in conducting safety/fire inspections and correcting any identified safety deficiencies. Document and maintain accurate records of inspections, maintenance work, accident-related activities and emergency responses.
- Ensure that LYNX emergency communication and warning systems always function properly.
- Serve as liaison with State of Florida, Orange County, City of Orlando, LYNX safety and security, and other external agencies for hazard resolutions involving street operations. Ensure that bus stops meet applicable safety requirements and LYNX practices.

#### 3.1.11 Communications Department - Marketing

- Develop marketing tools to increase the transit safety awareness of customers and others coming in contact with LYNX. Develop and implement community outreach programs promoting the safe use of LYNX services.
- Maintain a liaison with the media following accidents and emergencies involving LYNX and obtain copies of media broadcast segments as warranted.

### 3.1.12 Planning and Service Planning Department

- Conduct site inspections of proposed fixed routes. Coordinate route test trips. Consult with the Safety, Security and Risk Management Division for input of planning decisions.
- Ensure that service delivery schedules allow sufficient running time for safe operation within speed limits and adequate recovery time for Operators.
- Investigate operator complaints of insufficient running time. Develop work routes and schedule relief in accordance with collective bargaining agreements.

### 3.1.13 Administrative Support and Legal Affairs Department - Finance

- Facilitate achievement of SSPP objectives through preparation and control of the LYNX budget, staffing level recommendations and monitoring, and control of capital programs.
- Perform risk management tasks (also refer to section on risk manager).

### 3.1.14 Human Resources Department

- Develop job descriptions and work assignments for all LYNX positions.
- Develop position descriptions that address safety related restrictions and requirements. Develop and administer medical standards for specific job positions, as warranted. Ensure that successful candidates for positions are capable of safely performing the tasks of these positions on a repetitive basis.
- Administer the application of LYNX employee discipline policy. Maintain complete and current documentation in personnel files.
- Provide oversight and follow up of site visits by medical and health professionals (e.g., in connection with the authority's drug and alcohol testing program).
- Maintain injury reporting forms and workers compensation cases. Coordinate these records with the Safety, Security and Risk Management Division and risk management.
- Light Duty Program

### 3.1.15 Finance and Administrative Support Department – Procurement, Contracts and Material Control

- Ensure that the procurement process complies with established procedures for evaluating materials and products for use by the authority. Ensure that materials and services obtained by LYNX do not degrade the safety of the transit system.
- As warranted, include safety requirements in contracts, such that contractors must meet all applicable state, federal, and local regulations as well as authority requirements, related to the safety of LYNX employees, property, and the public.
- Develop, maintain and use a list of hazardous waste and materials. Enforce safety procedures related to hazardous substance acquisition, handling, labeling, storage, disposal and record keeping. Ensure that vendors supply the material safety data sheets (MSDS) for the types of chemicals, solvents, and other materials used by LYNX.

### 3.2 Coordination

As the focus of a safety program is system wide, related activities are often interdepartmental (crossing department lines within LYNX) and interagency (sometimes requiring involvement with the staff of other agencies). Coordination among relevant agencies, departments, policies, procedures, and individuals is imperative.

An important source of information on interdepartmental/interagency coordination is LYNX representation at seminars and meetings with other transit systems where safety issues are discussed. Insight gained at these meetings is made available to relevant staff.

#### 3.2.1 Safety, Security and Risk Management Committee

The Safety, Security and Risk Management Committee, chaired by the Director of Safety, Security and Risk Management or his/her designee, meets on a monthly basis, at a minimum, in order to discuss and correct all safety issues associated with transportation safety, industrial safety, system safety, disaster preparedness, environmental, and security. This committee will be supplemented in the near future as LYNX moves forward with plans to adopt a dual approach to facilitating safety coordination among departments:

- The responsibilities and membership envisioned for these committees are outlined below.

- Formally designate the shared responsibility of specific safety related activities. LYNX has identified 18 activities related to system safety, which will form the core elements of its system safety program. Core activities and interdepartmental responsibilities are summarized in the following matrix.

The Safety, Security and Risk Management Committee is still working toward bringing the common sense and unique perspectives of a variety of LYNX personnel to focus upon system safety issues. The Safety, Security and Risk Management Committee will function as an interdepartmental unit empowered to lead the authority in hazard management efforts.

Typical tasks for this committee will include:

- Data collection and analysis. Collect, analyze and report safety data. Review maintenance and failure rate data to identify safety problems.
- Accident or incident investigation. Participate in accident/incident investigations to assist in determining causes, as determined by the thresholds set by the Safety, Security and Risk Management Division..
- Inspections and drills. Plan, coordinate and conduct safety inspections, emergency drills, simulations and tests. Report results.
- Documentation. Prepare written documentation of all meetings, tasks, activities, investigations, analyses and recommendations. Follow up on all pending matters.
- Risk Management review.

Individuals holding the following job classifications are currently members of the Safety, Security and Risk Management Committee include:

- Director of Safety, Security and Risk Management - (Chair)
- 1596 Union Representative
- 1749 Union Representative
- Deputy Chief of Operations for Maintenance
- Manager of Maintenance - South Street
- Manager of Maintenance - LOC
- Maintenance Training Officer:
- Vehicle Maintenance Technician:
- Facility Maintenance Manager
- Deputy Chief of Operations for Transportation:
- Manager of Transportation
- Superintendent of Transportation
- Transportation Training Supervisor

- Bus Operator
- Human Resources Representative
- Risk Management Representative
- Customer Service Representative
- Marketing Department Representative
- Service Planning & Scheduling Representative
- Paratransit Representative
- Material Control Supervisor
- Safety & Security Officer
- Safety & Security Officer
- Diamond Security Representative

### 3.2.2 Inter-Agency

LYNX personnel regularly interface and coordinate with local, state and federal agencies, organizations, and associations regarding safety matters. To facilitate interagency coordination and enhance the effectiveness of LYNX system safety the authority encourages its safety personnel to actively participate on relevant boards, panels, and committees.

Examples of interagency coordination include:

- Disaster preparedness with the Orange County - Office of Emergency Management in accordance with the Orange County Contingency Emergency Management Plan. Special Event Planning where mass movement of people is required. Examples of this include: World Cup Soccer Events, Concerts, Pre-season NFL Games, College Citrus Bowl Games, Olympic Soccer Games, etc.

## RESPONSIBILITIES AND INTERFACES

Safety Related Tasks For Lynx Department	Admin	Trans	Vehicle Maint	Facilities Maint	Other	Safety Committee
Data Collection and Analysis	C	C	C	C	C	R/A
Occupational Health and Safety	I - 2	I - 2	I - 2	I - 2	I - 2	R/A
Training and Certification	I - 2	I - 1	I - 1	I - 1	C	R/A
Bus Operator Selection	I - 1	I - 2	N/A	N/A	N/A	R/A
Operational Driving Requirements	I - 1	I - 2	N/A	N/A	N/A	R/A
Drug and Alcohol Abuse Program	I - 1	I - 2	I - 2	I - 2	I - 2	R/A
Rules and Procedures	C	I - 1	I - 1	I - 1	C	R/A
Contractor/Supplier Safety	I - 1	I - 2	I - 2	I - 2	I - 2	R/A
Emergency Response Planning, Coordination and Training	I - 2	I - 2	I - 2	I - 2	I - 1 **	I - 2
Accident/Incident Reporting and Investigation	I - 2	I - 2	I - 2	I - 2	I - 2	I - 1 *
Annual Safety Audit	I - 2	I - 2	I - 2	I - 2	I - 1	R/A
Facility Inspections	I - 2	I - 2	I - 2	I - 2	I - 2	R
Vehicle Maintenance Audits and Inspections	C	C	I - 2	C	C	R/A
Operator Inspections	C	I - 1	I - 2	C	C	R/A
Hazard Identifications, Analysis and Resolution	I - 2	I - 2	I - 2	I - 2	I - 2	R/A
Equipment Test Programs	C	C	I - 1	I - 1	C	C
Proposed System Modification	I - 2	I - 2	I - 2	I - 2	I - 2	I - 1
Configuration Management and Control	I - 1	I - 2	I - 2	I - 2	C	R/A
Procurement	I - 1	I - 2	I - 2	I - 2	I - 2	R/A
Hazardous Materials Program	I - 2	C	I - 2	I - 2	C	R/A

KEY: I = Implementation  
 1 = Primary Role  
 2 = Secondary Role

C = Coordination & Interface  
 \* = Major Accidents (fatality and/or cost exceeding \$1,000)  
 \*\* = Fire Prevention Bureau

R = Review  
A = Audit

N/ A = Not Applicable

The tasks, which form the core of the LYNX system safety program, are described in detail in the next section.

## 4.0 SYSTEM SAFETY PROGRAM

This chapter describes the functions in the LYNX system safety program, identified in the departmental responsibility matrix in Chapter 3. The functions are generically grouped within eight general categories:

- Safety data collection and analysis.
- Personnel training and conduct.
- Bus operator selection.
- Operational driving requirements.
- Accident/Incident reporting and investigation.
- Safety audits and inspections.
- Hazard identification, analysis, and resolution.
- Systems development.

Other functions will be implemented as required (e.g., new laws or codes; additional police, security, or medical activities) and as directed by LYNX management. The implementation schedule and status of current program functions are included in Chapter 5.

### 4.1 Safety Data Collection and Analysis

This function involves acquiring and analyzing safety related data in order to meet internal and external reporting requirements. Trend analysis is also performed as a means of identifying causes of accidents and occupational injuries. Analysis addresses roadway conditions, equipment type, procedures, human factors, environmental conditions, and other factors.

Currently, safety data is acquired and analyzed formally by a safety and security officer in conjunction with the National Transit Database reporting procedure. The safety officer reviews all incidents in each mode to determine all reportables (those that meet NTD reporting guidelines). Using all information gathered from internal and external sources, such as incident reports, informal reporting, tips and external reports (risk management data, media, police reports, customer complaints, employee interviews, financial data, etc.). If incidents are not complete, the safety officer requests more information from appropriate sources. Once each incident has a complete file with all pertinent information, incidents

that require more follow-up, such as hazard investigation and analysis, are referred, when trends are identified through this process, to the Director of Safety, Security and Risk Management.

LYNX is currently in the process of specifying and obtaining software for the purpose of electronically collecting and analyzing safety and security data.

Safety data collection and analysis also involves obtaining technical information for use in systems design, testing; and inspections, as identified in Section 4.6.

Resources include:

- Florida Department of Highway Safety & Motor Vehicles (DHSMV).
- National Highway Traffic Safety Administration (NHTSA).
- United States Department of Transportation (USDOT).
- Florida Department of Transportation: (FDOT).
- Occupational Safety and Health Administration (OSHA).
- Environmental Protection Agency (EPA).
- American National Standards Institute (ANSI).
- National Fire Protection Association (NFPA).
- American Society for Testing and Materials (ASTM).
- Federal Motor Vehicle Safety Standards (FMVSS).
- Society of Automotive Engineers (SAE).
- American Public Transit Association (APTA).
- National Safety Council (NSC).
- Transportation Safety Institute (TSI).
- Florida Administrative Code (FAC).
- Material Safety Data Sheets (MSDS).

Other data sources include building codes and professional society guidelines. Safety data is exchanged with other transit systems and is provided to external agencies, as required (e.g., Florida Department of Transportation, Federal Transit Administration, etc.).

## 4.2 Personnel Training and Conduct

Activities directly related to personnel include employee safety, training and certification, drug and alcohol abuse testing, rules and procedures, contractor safety, and responding to emergencies.

### 4.2.1 Bus Operator Selection

Bus operators must meet, at minimum, the following qualifications to be employed by LYNX:

- Be twenty one (21) years of age.
- Have no suspension or revocation of driving license for moving violations within the past three (3) years.
- Must pass a DOT physical examination and urine drug screen, with physical examination performed by a licensed medical doctor every two (2) years. The physical examination requirements for operations are in compliance with the Florida Administrative Code.
- Successful completion of a seven (7) week training period. Driving safety and training program will include an introduction to LYNX bus maneuvers, Defensive driving program and discussion, Emergency and accident avoidance procedures, route training, Americans with Disabilities Act, and customer relations.
- Agreement to abide by terms of LYNX Drug Free Work Place Policy.

#### 4.2.2 Bus Operator Requirements

A LYNX bus operator must have the appropriate Commercial Drivers License (CDL) to operate a bus. Operators are required to notify LYNX dispatch when they receive notice that their license has been suspended, canceled, or revoked before the end of the business day when they received the notice. At no time will bus operators be permitted to drive a LYNX vehicle without a valid CDL in possession.

#### 4.2.3 Training and Certification

Formal safety certification attests that the operating transit system, including all property, is safe for customers, employees, emergency response personnel, and the general public. Such certification is required by Florida statute and FDOT rules for fixed guideway transit modes and for public transit bus inspections. In addition, the FTA has used the safety certification process to verify implementation of mandated safety programs. Activities required to support this function include:

- Development of preventive maintenance bus inspection procedures.
- Development and retention of adequate documentation to support level of safety attested and for submission to state and federal agencies.

LYNX uses safety training programs as a means of informing employees about hazards associated with their jobs and the appropriate methods for controlling these hazards. The programs also motivate employees to work safely. There are three types of safety training: 1) Initial, 2) Periodic, and 3) Retraining. Training

mechanisms include a classroom, written and video communications, field exercises and drills.

There are formal training programs for bus operators and employees involved in maintenance activities. These include training classes, training manuals and lesson plans. Testing is conducted as necessary to ensure training effectiveness and all safety training is documented.

The frequency and amount of training conducted by the various departments depend upon regulatory requirements and the level of hazards associated with the operation. The Safety, Security and Risk Management Division, supervisor of training, and the Safety, Security and Risk Management Committee work together to ensure that safety elements are included in the curricula and that safety information is disseminated to affected employees.

Examples of these types of training techniques include:

- Identifying requirements for all LYNX training as it impacts safety. This encompasses initial and refresher training related to procedures and equipment, including manufacturers' training and retraining requirements identified as a result of accident investigations.
- Reviewing all training programs for safety adequacy.
- Assessing the effectiveness of training courses and on the job experience by the conduct of emergency scenarios, drills, audits, and evaluations. Evaluations may be by on the job performance, statistical trends, public perception, etc.
- Providing specific training with specialized curricula to bus operators, mechanics, and emergency response personnel with the introduction of new vehicle technologies.

#### 4.2.4 Drug and Alcohol Testing Program

LYNX has established a drug and alcohol testing program to support its substance abuse policy (see Appendix F).

#### 4.2.5 Rules and Procedures

Standard operating procedures (SOPs) are required for all safety critical activities in order to ensure the activities are completed in a safe and consistent manner, an auditable document exists to guide activities at LYNX, and to enforce and reinforce LYNX safety programs and the SSPP. LYNX is currently in the process of development of all SOPs and associated Emergency Operating Procedures (EOPs) for the agency, it is expected this process will take a year or more as

existing procedures are reviewed and updated and new procedures are developed.

Each department will review its own SOPs and EOPs annually to ensure they are current and effective.

The Safety, Security and Risk Management Committee will review rules and procedures periodically, or when accidents or incidents indicate a possible rule or procedural deficiency. In addition, any LYNX employee can propose a rule or procedure modification for the Safety, Security and Risk Management Committee to consider. Reviews may also include instructional materials, emergency procedures, rule books, and Standard Operating Procedures. The review process involves identifying operational hazards and determining whether rules and procedures adequately control exposure to the hazards. The effect of the rule or procedure on the safety of other operations also will be examined.

Urgent changes can be made by department managers having control over specific rules/procedures by means of bulletins, notices, or orders; subsequent to implementation, they must be submitted by the department head to the Safety, Security and Risk Management Committee. Whenever updated, Standard Operating Procedures, bulletins, department notices and memoranda will be reissued.

#### 4.2.6 Contractor/Supplier Safety

All affected departments will work with procurement and the Safety, Security and Risk Management Division to ensure that, as appropriate, contractors and suppliers meet LYNX safety requirements, and all OSHA regulations prior to, and when commencing work for LYNX. Department personnel are required to monitor the safety performance of contractor/supplier staff (e.g., wearing appropriate safety equipment, adhering to facility speed limits) informing procurement and the Safety, Security and Risk Management Division whenever deviations from established procedures occur or are needed. Procurement will coordinate contractor/supplier safety with the Safety, Security and Risk Management Division.

#### 4.2.7 Emergency Response Planning, Coordination, and Training

As a key participant in the Orange County Contingency Emergency Management Plan, LYNX is responsible for coordination and implementation of transportation resources to federal, state and local governments, volunteer organizations and the general public in response to a natural or man-made disaster, or other similar event, which necessitates immediate personnel transportation and evacuation.

Additionally, LYNX is responsible for coordinating the necessary food and supplies into the affected area(s). In such circumstances LYNX is designated as the prime coordinator of Orange County's Emergency Operations Center as Emergency Support Function (ESF) #1 - Transportation.

#### 4.3 Accident/Incident Reporting and Investigation

All accidents and incidents will be thoroughly investigated if they involve an injury or illness, significant damage to vehicles, equipment or facilities, release of hazardous material, loss of vehicle control, or if management believes there was a high potential for these losses as a result of the event.

Fortunately, most accidents and incidents are relatively minor in severity; these are routinely investigated by the transportation supervisors. An accident report is completed and the Safety, Security and Risk Management Division determines if the accident is preventable or non preventable based on findings from evidence, statements and photographs. Forms currently in use are attached as Appendix G. Accident reports shall be completed by the operator immediately after the completion of the day worked.

The LYNX Safety, Security and Risk Management Division will maintain a comprehensive accident reporting and record keeping system. Any accidents involving a fatality will be investigated in accordance with FAC 14-90. A formal written report will be documented with investigation facts, causal factors and corrective action plans. The Safety, Security and Risk Management Department will be responsible for monitoring and supporting the affected department's implementation of the corrective actions. All reports and documentation of these activities will be maintained for at least four years.

In the event of serious or multi-departmental accidents and incidents, the LYNX Safety, Security and Risk Management Division will follow its procedures for accident notification, response, and investigation as well as facilitate interagency coordination when outside agencies also investigate the event.

##### 4.3.1 Accident Review

The Safety, Security and Risk Management Division is responsible for identifying and tracking trends in accidents and incidents, and in order to ensure that all

accidents are properly reviewed and analyzed, an accident review process is required for bus operator and maintenance personnel accidents.

#### 4.4 Safety Audits and Inspections

The LYNX safety program will encompass an annual system-wide safety audit, monthly departmental inspections, and periodic audits in the areas of operations and maintenance. Some audits/reviews will be formal and others will be unannounced. The Safety, Security and Risk Management Division will be responsible for developing and distributing standard procedures to be followed during the conduct of planned, formal reviews and audits. The reviewed department will be informed of the audit/review and will be provided with information regarding the purpose, scope and content of the planned safety audit/review. Preliminary findings will be communicated as soon as practical to enable expeditious corrective action, The unannounced audit/review will be conducted on a no notice basis. However, the auditors will document the purpose, scope, content, and results of each such, review/audit.

The purpose of annual safety audits is to officially identify and evaluate and document any deficiencies, accomplishments., and trends related to the LYNX system safety program, The Safety, Security and Risk Management Division is responsible for the direction of the reviews and audits of LYNX departments, sections, or units, and contractors to determine performance related to system safety goals and activities. Audit guidelines will be developed by the Safety, Security and Risk Management Committee to measure the success of the safety policies, procedures, and requirements. Upon completion of each annual safety audit, the Safety, Security and Risk Management Committee will issue a report of the results, specify any areas of deficiency, make recommendations, identify corrective actions, and issue copies of the report to the chief executive officer, department directors, and all department managers.

All LYNX departments are subject to safety audits, which always will include fire/life safety issues and may include emergency scenarios. The Safety, Security and Risk Management Committee will coordinate with the fire department to develop, train, and test authority performance in following emergency and operational procedures which ensure that all fire/life safety related equipment is in proper order, all associated personnel are appropriately trained, and to prescribe testing and inspection procedures for fire/life safety equipment in accordance with applicable codes.

Departments will be expected to document inspections, testing, training, reports of unsafe conditions, accidents, injuries, and investigations, procedures, and

other records as necessary for the audit. Certain critical operations requiring more rigorous review/audit include training and maintenance programs. The annual safety audit will address documentation, practices, and compliance with the SSPP, LYNX policy, and other requirements.

#### 4.4.1 Internal Safety and Security Audit

The chief executive officer will establish an internal safety audit program to measure the effectiveness of the safety program in meeting the requirements stated in the plan. Internal safety audits verify that safety elements of the system are in place and their performance is within acceptable ranges. The internal safety audit documents whether departments are fulfilling their SSPP responsibilities.

The internal safety and security audit will be carried out by the chief financial officer and supported by department directors. The Safety, Security and Risk Management Division will coordinate this effort.

Schedule: The internal safety and security audit is announced by the chief executive officer to ensure the full support and participation of each department. Internal safety audits are conducted annually.

Content: An internal safety audit addresses the following functions:

- Hazard identification and resolution.
- Accident/Incident reporting and investigation.
- Facilities' inspections.
- Maintenance audits and inspections.
- Rules and procedures review.
- Training and certification review/audit.
- Emergency response planning, coordination and training.
- System modification review/approval.
- Safety data acquisition and analysis.
- Interdepartmental/Interagency coordination.
- Configuration management.
- Employee safety programs.
- Hazardous materials program.
- Drug and alcohol testing programs.
- Contractor safety coordination.
- Procurement.

Follow up: Each department chief is responsible for carrying out the approved recommendations and action plans resulting from an internal safety and security

audit. Any manager who foresees or encounters a problem with completing implementation within the established time frame shall inform the chief executive officer. A process will be established and the Safety, Security and Risk Management Committee may address and resolve implementation issues.

#### 4.4.2 External Safety Audits

From time to time the authority may be subjected to external or independent safety audits of operations, equipment or facilities. External safety audits may be required by a regulatory agency or deemed warranted by authority management. Examples of these agencies include: U.S. Department of Transportation (DOT), Occupational Safety & Health Administration (OSHA), Environmental Protection Agency (EPA), State of Florida - Department of Transportation (FDOT), State of Florida Department of Labor, Orange County – Risk Management Department, City of Orlando – Fire Department, etc.

Content: External safety audits might include an audit of the SSPP and the following items include therein:

- Policy statement and authority for SSPP.
- Description of purpose for SSPP.
- Clarity of SSPP goals.
- Identifiably and attainability of SSPP objectives.
- System description and organizational structure.
- SSPP control and update procedures.
- Hazard identification/resolution process.
- Accident/incident reporting and investigation.
- Facilities inspections.
- Maintenance audits/inspections.
- Rules/procedures review.
- Training and certification review/audits process.
- Emergency response planning, coordination and training.
- System modification review/approval process.
- Safety data acquisition/analysis.
- Interdepartmental/interagency coordination.
- Employee safety programs.
- Configuration management.
- Hazardous materials program.
- Drug and alcohol abuse programs.
- Contractor safety coordination.
- Procurement.

Follow up: LYNX actions, in response to external safety audits, will be conducted by LYNX Safety, Security and Risk Management Division, coordinated with the chief financial officer, and approved by the chief executive officer. The chief operating officer will be continuously updated on the LYNX safety issues. The Safety, Security and Risk Management Committee may assist in resolving any outstanding safety items.

#### 4.4.3 Facility Safety and Fire Inspections

Routine facility inspections are to be conducted by the Safety, Security and Risk Management Division on all departments to identify unsafe or unhealthy conditions, determine if maintenance is required, and to monitor system-wide compliance with SSPP requirements. The Safety, Security and Risk Management Division will supplement departmental inspections with more formal evaluations of facility equipment, as well as preparing, posting, and keeping current site maps which show the location of safety equipment, entrances, exits, etc. Each department is required to conduct facility inspections at least monthly (e. g., exposed sharp edges, first aid supplies, floor/carpet condition, furniture/equipment placement, combustibles/stacked material in storage, placement and condition of electrical cords). Facilities maintenance personnel will conduct equipment inspections on a periodic basis according to PM schedules (e.g., fire alarms and extinguishers, exit signs, HVAC, elevators, etc.). The frequency of equipment inspections depends upon the level of hazards associated with operation, industry standards, and contractor/supplier recommendations. Facilities and equipment are also inspected by departments and/or the Safety Security and Risk Management Division as a result of accident reports.

#### 4.5 Occupational Safety and Health

This function entails developing and implementing occupational employee illness and injury prevention measures which comply with federal, state and local regulatory requirements. The Safety, Security and Risk Management Committee is responsible for assisting in developing this program. The Safety, Security and Risk Management Division shall facilitate the implementation by other departments, and monitoring compliance. Some issues to be addressed are respiratory protection, hearing conservation, and personal protective equipment requirements.

Typical elements related to occupational health and safety include:

- Methods for identifying and evaluating workplace hazards.

- Procedures for investigating occupational injuries and illnesses and for correcting unsafe or unhealthy conditions in a timely manner.
- Occupational health and safety training for employees.
- Communication methods, such as safety meetings, posted notices, suggestion programs, and labor/management safety and health committees.
- Verification of compliance with safety and health practices including recognition and discipline.
- Documentation of compliance with program training and inspection requirements.

Methods of communicating safety information to employees including posting and/or distribution of bulletins, department notices, and memoranda. Such information is posted at a central location in each department, easily accessible to employees. Other communication methods include posters, signs, brochures, training materials, rule books, and Standard Operating Procedures.

## 4.6 Hazards

### 4.6.1 Purpose, Scope, and Requirements

To ensure that LYNX provides a safe and reliable transportation service, the authority has established a process by which hazards are identified, analyzed for potential impact on the operating system, and resolved in a manner acceptable to LYNX management and applicable regulatory agencies.

All LYNX management, staff, contractors and suppliers are required to implement high standards of safety and system assurance throughout the design, construction, testing, and operational phases of LYNX projects. Hazards, which cannot be eliminated in the design, are to be controlled by safety devices, warning devices, training, and/or written procedures to prevent mishap.

Hazard identification and resolution is a system safety activity managed by the LYNX Safety, Security and Risk Management Division. The safety task force will determine, on a case by case basis, those hazards for which formal analyses are to be prepared. All LYNX staff and committee meetings are forums for identifying potential hazards.

Hazards can be identified by any or all of the following methods:

- Formal analyses, prepared and submitted by contractors.
- Design reviews, conducted as part of the design process.
- Preliminary field observations, during project construction and testing.
- Operating experience.

Safety analysis requirements, included in design and procurement contracts, will provide for:

- Identification of potential hazards.
- Assessment of the severity and probability of occurrence of each potential hazard.
- Timely awareness of hazards for those who must resolve them.
- Traceability and control of hazards through all phases of a project's life cycle.

#### 4.6.2 Hazard Categories

##### Hazard Severity

Hazard severity categories are defined to provide a qualitative measure of the worst credible mishap resulting from personnel error, environmental conditions, design inadequacies, and procedural deficiencies for a system, subsystem or component failure or malfunction as indicated in the following table:

<b>Category</b>	<b>Description</b>	<b>Mishap Definition</b>
<b>I</b>	<b>Catastrophic</b>	<b>Death or system loss</b>
<b>II</b>	<b>Critical</b>	<b>Severe injury, severe occupational illness or major system damage</b>
<b>III</b>	<b>Marginal</b>	<b>Minor injury, minor occupational illness or minor system damage</b>
<b>IV</b>	<b>Negligible</b>	<b>Less than minor injury, occupational illness or system damage</b>

##### Hazard Probability

The probability that a hazard will occur during the planned life expectancy of the system element, subsystem, or component, can be described subjectively in potential occurrences per unit of time, event, population, items, or activity. A qualitative hazard probability may be derived from research, analysis, and evaluation of historical safety data from the same or similar systems.

Supporting rationale for assigning a hazard probability will be documented in hazard analysis reports. A qualitative hazard probability ranking is identified in the following table:

Level	Description	Probability
Frequent	A	Likely to occur frequently to an individual item. Continuously experienced in the fleet/inventory
Reasonably Probable	B	Will occur several times in the life of an item, will occur frequently in fleet/inventory
Occasional	C	Likely to occur sometime in the life of an item; will occur several times in fleet/inventory
Remote	D	Unlikely, but possible to occur in the life of an item; unlikely but can be expected to occur in fleet/inventory
Extremely Improbable	E	So unlikely it can be assumed occurrence will not be experienced to an individual item; unlikely to occur but possible in fleet

#### Hazard Resolution Process

Hazards identified within the system are to be evaluated by appropriate staff and eliminated, or mitigated, to a level acceptable by authority's management. The following schedule has been developed to ensure that the optimum level of safety is achieved through the expeditious resolution of hazards, once identified.

Hazard Resolution Schedule	
<u>Criterion</u>	Resolution Timetable
<b>Unacceptable</b>	<b>Within five (5) working days, a resolution should be developed and implemented:</b>
<b>Undesirable; Chief Executive Officer Decision required</b>	<b>A hazard with a risk index of unacceptable must be eliminated as soon as possible. There is no other option.</b>
<b>Acceptable with review by Director, Safety Security and Risk Management</b>	<b>Within ten (10) working days, the review process should be completed and accepted</b>
<b>Acceptable to Safety, Security and Risk Management Division</b>	<b>Notification within thirty (30) days</b>

#### 4.6.3 Risk Assessment and Corrective Action

Before implementation of any corrective action, system safety analyses establish a hazard severity category (I through IV) and a probability ranking (A through E), which are combined to form a risk index, reflecting both severity and probability of occurrence for each identified hazard. A risk index is assigned to a hazard before implementation of any corrective action. The range of possible risk indices is shown in the following matrix (explanation of shading follows):

<b>HAZARD RISK INDICES</b>				
	<b>I Catastrophic</b>	<b>II Critical</b>	<b>III Marginal</b>	<b>IV Marginal</b>
<b>(A) Frequent</b>	<b>IA</b>	<b>IIA</b>	<b>IIIA</b>	<b>IVA</b>
<b>(B) Probable</b>	<b>IB</b>	<b>IIB</b>	<b>IIIB</b>	<b>IVB</b>
<b>(C) Occasional</b>	<b>IC</b>	<b>IIC</b>	<b>IIIC</b>	<b>IVC</b>
<b>(D) Remote</b>	<b>ID</b>	<b>IID</b>	<b>IIID</b>	<b>IVD</b>
<b>(E) Improbable</b>	<b>IE</b>	<b>IIE</b>	<b>IIIE</b>	<b>IVE</b>

Risk assessment criteria will be applied to the identified hazards based on their estimated severity and probability of occurrence to determine acceptance of the risk or the need for corrective action to further reduce the risk.

The risk assessment and acceptance criteria will assist decision makers in understanding the amount of risk involved by accepting the hazard relative to the costs (schedule, dollars, operations, etc.) to reduce the hazard to an acceptable level. The following table identifies the acceptance criteria.

<b>ACCEPTANCE CRITERIA</b>		
<b>Risk Index</b>		<b>Decision Authority</b>
<b>IA, IB, IC, IIA, IIB, IIIA</b>		<b>Unacceptable</b>
<b>ID, IIC, IID, IIIB, IIIC</b>		<b>Undesirable. Chief Executive Officer decision required.</b>
<b>IE, IIE, IIID, IIIE, IVA, IVB</b>		<b>Acceptable with review by Director, Safety, Security and Risk Management.</b>
<b>IVC, IVD, IVE</b>		<b>Acceptable with review by LYNX Safety, Security and Risk Management Division</b>

Action will be taken to eliminate identified hazards or reduce the associated risk. Catastrophic and critical hazards will be eliminated or their associated risk

reduced to an acceptable level. If this is impossible or impractical, alternatives will be recommended for the appropriate decision making.

#### 4.6.4 Hazard Resolution Precedence

The order of precedence for satisfying system safety requirements and resolving (eliminating or controlling) hazards will be as follows:

- Design for minimum risk. The primary safety effort during the design phase of a project will be an attempt to eliminate hazards through selection of design features (e.g., fail safe, redundancy).
- Incorporate safety devices. Hazards that cannot be eliminated through design will be reduced to an acceptable level through the incorporation of appropriate safety devices.
- Provide warning devices. Where it is not possible to preclude the existence or occurrence of a hazard, devices will be installed for the timely detection of the hazard condition and the generation of an adequate warning signal.
- Develop special procedures and training. Where it is not possible to reduce the magnitude of an existing or potential hazard through design or the use of safety and warning devices, the contractor/supplier will develop special procedures to control the hazard.

All facility, system and vehicle specification requests for proposals will require that responding contractors/suppliers solve hazards in accordance with this list, in order of precedence. Specifications will include the requirement for all contractors/suppliers: who provide systems, subsystems, or equipment that effect safe vehicle movement or passenger/employee safety to establish and maintain a SSPP. These program plans will, at a minimum, define objectives, tasks, procedures, schedules and data submittal for the safety activities that will be performed by the contractor/supplier. The contractor/supplier SSPP and supporting documentation must be approved by LYNX Safety, Security and Risk Management Division and procurement department.

#### 4.7 Systems Development

As the transportation authority of a region experiencing significant growth, it is expected that LYNX will undergo its own process of growth and change to keep pace with the area it serves. As the transit system continues to develop, four safety program elements will require increasing surveillance and monitoring:

- Equipment test programs.
- Configuration management and change control.

- Procurement.
- Hazardous materials program.

#### 4.7.1 Equipment Test Programs

Equipment test programs are primarily concerned with verifying that:

- The equipment can perform in the LYNX operating environment, while meeting required specifications.
- The equipment can be integrated with other equipment to provide dependable service.
- Personnel, procedures and equipment can function safely together in normal, abnormal and emergency conditions.

Required safety related tests are identified and documented during equipment planning and procurement. Hazards that become apparent during testing are reported and resolved either by equipment redesign, use of safety warnings, or the imposition of special procedures.

The Safety, Security and Risk Management Division and other staff as necessary will support the Deputy Chief of Operations-Maintenance in this effort.

#### 4.7.2 Configuration Management and Change Control

Configuration management for LYNX is defined as identification and documentation of the functional and physical characteristics of facilities, equipment and vehicles, including the control of changes to these elements. Required configuration information will be maintained and tracked, documenting test/modified equipment as well as relevant serial numbers and dates of installation of standard equipment. The Deputy Chief of Operations-Maintenance will be responsible for storing, retrieving configuration information as well as keeping the data current. Changes to configurations will be classified as to their impact and functional importance to operations.

- Class I changes are defined as hardware, material or software changes that affect vehicle or equipment performance, specification requirements, previously approved documents, or interchangeability with existing components.
- Class II changes are defined as hardware, material or software changes that do not affect vehicle or equipment performance, specification requirements, previously approved documents, or interchangeability with existing components.

#### 4.7.3 Administrative Support and Legal Affairs Department - Procurement and Contracts

The purchasing process formally begins with the preparation of a request and its submission to the procurement department. However, planning for contracts and procurement actions begin far in advance of this time. Advance procurement planning includes safety as a significant factor, by addressing system safety as well as technical, business, management and other considerations that will control acquisition actions from the inception through completion.

This department works in conjunction with the Safety, Security and Risk Management Division when purchasing personal protective equipment for employees, controlling chemicals and other hazards in the workplace, mandating safety requirements in specific contracts, and requiring compliance from specific vendors with LYNX safety requirements.

#### 4.7.4 Hazardous Materials Programs

All LYNX activities must comply with applicable federal, state, and local environmental protection laws. Procedures have been established in order to control hazards associated with procurement, storage, transfer use, and disposal of hazardous substances. Methods used in this process include product and substance evaluations, procurement procedures, tracking and monitoring, testing, inspections, marking, and training. These procedures also address record keeping and reporting requirements. Examples of the authority's handling of hazardous materials and waste include a file of Material Safety Data sheets, employee training, and procedures regarding chemical labeling, chemical disposal, employee notification (i.e., right-to-know), and formal disposal and tracking procedures.

### 5.0 SSPP IMPLEMENTATION, MAINTENANCE, and VERIFICATION

#### 5.1 SSPP Implementation

Implementation of the SSPP by all LYNX departments and firms participating in LYNX projects will assure that safety is an integral part of all planning, testing, operation, maintenance, construction, procurement, and disposal activities. System safety continuity will be assured through the evolution of the plan, periodic updates of the SSPP, and audits and reviews. Managers are responsible for carrying out plan procedures pertaining to their respective departments.

The authority has adopted an eight step process for implementing the SSPP, modeled on information presented through the Federal Transit Administration's Transportation Safety Institute:

1. Ignite and renew interest of top management in the system safety program concept.
2. Evaluate appropriate staff and schedule requirements for implementation.
3. Coordinate and solicit cooperation from all departments.
4. Develop and document the revised SSPP.
5. Obtain top management approval for the revised SSPP.
6. Distribute the revised SSPP and obtain feedback from all departments.
7. Implement the SSPP (revised version).
8. Assess the implemented SSPP and revise as necessary.

This document, dated February 2004, is a continual revision to the LYNX SSPP (dated February 1993). It represents the current iteration of step #8 in the authority's program implementation process.

## 5.2 SSPP Maintenance

To remain viable, the SSPP must be adjusted and updated to reflect changes in the authority's organization, procedures, equipment, facilities, and operating environment.

### 5.2.1 SSPP Review and Update

The SSPP is scheduled for a bi-annual review by deputy directors, department directors, managers, and supervisors. The SSPP will be updated following the bi-annual review and also as a result of the following actions within the authority:

- Policy changes (mission, goals or objectives).
- Organizational changes.
- Changes to rules and regulations.
- Changes in operating procedures.
- Elimination of equipment or addition of new equipment.
- Elimination of a facility or additional/acquisition of a new facility.

Updates due to changes in facilities or equipment will be directed to the Safety, Security and Risk Management Division, using change pages within 30 days of the completion of the action. Changes in policy, organization, rules and regulations, or operations necessitating plan adjustments will be accomplished within the time limit prescribed in the plan revision schedule.

### 5.2.2 Revisions to SSPP

This System Safety Program Plan will continually be updated and revisions will be submitted to and incorporated by the LYNX Safety, Security and Risk Management Division. The process of revising the SSPP must include:

- A thorough review of the current plan by authority's management
- Complete documentation of all proposed revisions to the plan
- Required approval
- Distribution
- Implementation

<b>Plan Revision Schedule</b>		
<b>Activity</b>	<b>Responsibility</b>	<b>Target</b>
<b>Review plan</b>	<b>Directors, Department Managers, Safety and security</b>	<b>14 days</b>
<b>Document recommendations for proposed revisions to Plan</b>	<b>Safety, Security and Risk Management Division</b>	<b>10 days</b>
<b>Review of proposed revisions</b>		<b>10 days</b>
<b>Obtain required approval of revised Plan</b>	<b>Safety, Security and Risk Management Division</b>	<b>5 days</b>
<b>Distribute revised Plan</b>	<b>Safety, Security and Risk Management Division</b>	<b>5 days</b>
<b>Implement revised Plan</b>	<b>Directors and Department Managers</b>	<b>30 days</b>

### 5.2.3 Accident Statistical Data Review

Supported by the Safety, Security and Risk Management Committee and the Safety, Security and Risk Management Division collect, maintain, analyze and report on safety data, categorize accidents, and prepare and submit accident related reports for evaluation to LYNX management and outside agencies, as required. Monthly reports summarizing accident statistics will be prepared and distributed to LYNX management for review and comment. Quarterly and annual reports comparing current and previous accident experiences also will be prepared and distributed to management.

### 5.3 SSPP Verification

Assurance of compliance with safety requirements of the SSPP will be accomplished using, management tools such as design reviews, testing, hazard analyses and resolution, analysis of accident/incident data, reports, inspections, investigations, drills, configuration control, and transit safety and assurance audits.

Auditing techniques, procedures and schedules will be implemented to ensure that the objectives and requirements of the SSPP are being achieved. Safety audits may include internal units and outside agencies and contractors, as appropriate.

## Appendix List

- Appendix A: Glossary of Transit System Safety Terms
- Appendix B: Subsection 341.061 Florida Statutes
- Appendix C: Rule Chapter 14-90, Florida Administrative Codes
- Appendix D: LYNX Organizational Chart
- Appendix E: LYNX Fleet Inventory
- Appendix F: LYNX Drug and Alcohol Policy
- Appendix G: LYNX Incident and Accident Forms