Regional Intelligent Transportation System Architecture Development For New York City

Maintenance Plan

New York City Sub-Regional ITS Architecture

Version 1.00

Dated October 29, 2004

By

ConSysTec Corp.

POB 517, 17 Miller Ave.

Shenorock, NY 10587-0517

914-248-8466

Prepared for

New York State Department of Transportation

D008598 PIN X735.48

Traffic System Services for Traffic & Safety, Preliminary & Final Design Services, Phases I-VI, Advanced Traffic Management System (ATMS) on Highways

Table of Contents

1 Introduction 1
1.1 Background 1
1.2 Intended Audience 2
1.3 Purpose 2
1.4 Report Organization 2
2 Regional ITS Architecture 4
2.1 What are Intelligent Transportation Systems (ITS)? 4
2.2 National ITS Architecture 4
2.3 FHWA Final Rule and FTA Final Policy on ITS Architecture and Standards 5
2.4 New York City Sub-Regional ITS Architecture 6
3 Changes 8
3.1 Introduction 8
3.2 Why Changes Occur 8
3.2.1 Changes to the Project Definition 8
3.2.2 Project Addition/Deletion 9
3.2.3 Changes in Project Status 9
3.2.4 Changes in Project Priority or Regional Needs 9
3.2.5 Changes in Agreements 9
3.2.6 Changes in Regional Needs 10
3.2.7 New Stakeholders 10
3.2.8 Changes in Other Architectures 10
3.2.9 Changes in the National ITS Architecture 10
3.3 Changes to be Reflected in the NYCSRA 11
4 Roles and Responsibilities 12
4.1 Introduction 12
4.2 Partner Agencies 13
4.2.1 Introduction 13
4.2.2 Roles and Responsibilities 14
4.3 Stakeholders 14
4.3.1 Introduction 14
4.3.2 Roles and Responsibilities 15
4.4 Responsible Agency 15
4.4.1 Introduction 15
4.4.2 Roles and Responsibilities 15
4.5 Maintenance Working Group 16
4.5.1 Introduction 16
4.5.2 Chairperson 16
4.5.3 Roles and Responsibilities 16
4.6 Maintenance Manager 16
4.6.1 Introduction 16
4.6.2 Roles and Responsibilities 17
4.7 Consultant 17
4.7.1 Introduction 17
4.7.2 Role and Responsibilities 17

5 Baseline 19
5.1 Introduction 19
5.2 Baseline Documents and Outputs 19
5.3 Version Control 22
5.3.1 Version Control Guidelines 22
5.3.2 Revision History 22
5.4 Baseline Availability 23
6 Change Management Process 24
6.1 Introduction 24
6.2 Philosophy 24
6.3 When to Update 24
6.4 Change Proposals 27
6.4.1 Who can Request a Change 27
6.4.2 Defining the Change 28
6.4.3 Assessing the Impact 30
6.4.4 Reviewing the Change Request Form 31
6.4.5 Implementation 32
6.5 Submission to Federal Agencies 33

Table of Figures

Figure 2-1 – National ITS Architecture Sausage Diagram 5

Figure 4-1 - Roles and Responsibilities 13

Figure 6-1 - Change Management Process 26

Figure 6-2 – Change Request Form **29**

Revision History

Filename	Version	Date	Author	Comment
NYCSRA Maintenance Plan – Oct 29 2004.doc	1.00	10/29/04	PChan	Version 1.00

1 Introduction

1.1 Background

In December 2002, Consensus Systems Technologies Corp. (ConSysTec), was sub-contracted by Edwards and Kelcey, to develop a New York City Regional ITS Architecture for the five boroughs of New York City. This work was performed under a supplemental agreement (S.A. #26) between Edwards and Kelcey and New York State Department of Transportation, Contract D008598, PIN X735.48, Traffic System Services for Traffic & Safety, Preliminary & Final Design Services, Western Queens Regional Area.

Under this supplemental agreement, ConSysTec was to develop a New York City Sub-Regional ITS Architecture (NYCSRA) that was in accordance with the April 8, 2001 Final FHWA Rule and FTA Policy on Intelligent Transportation System Architecture and Standards. This Rule/Policy required that each region deploying ITS Projects funded through the highway trust fund must develop a "regional ITS architecture". This regional ITS architecture, which is to based on the National ITS Architecture, is intended to foster the deployment of integrated regional ITS systems in a cost-effective, practical manner.

With the participation and support of various transportation agencies in the New York City region, the NYCSRA was developed through a series of functional area meetings, workshops, and individual discussions. The results and outputs of the NYCSRA, which includes detailed information exchange requirements documented using the customized market packages (available on the project web site), are presented in a separate document.

However, the Final FHWA Rule and FTA Policy on Intelligent Transportation System Architecture and Standards also require that the each region and its participating stakeholders must maintain the regional ITS architecture once it has been developed. This document, Maintenance Plan - New York City Sub-Regional ITS Architecture, presents the change management process agreed upon by the stakeholders for modifying and updating the NYCSRA as projects are implemented, new transportation services are needed, and as regional priorities and goals change. This document describes the procedures to initiate a change to the NYCSRA, the roles and responsibilities of the stakeholders, and the process for which a proposed change is agreed upon and implemented.

This document is the fourth of four documents that comprise the New York City Sub-Regional ITS Architecture. The first document contains the descriptions of the ITS systems and the identified interfaces between these systems. The second document, the Implementation Plan, summarizes the outputs from the NYSRA and the third document, the Use Plan, describes the different methods that the NYCSRA can be used.

1.2 Intended Audience

This Maintenance Plan document is intended primarily for all stakeholders and stakeholder representatives directly involved with the maintenance of the NYCSRA. The majority of the persons participating with the NYCSRA will not be directly involved with the actual initiation of the change management policies and procedures contained in this Maintenance Plan. However, all stakeholders, including planners, managers, and implementers, should be familiar with the highlights of the maintenance plan. These highlights include the purpose of the maintenance plan, what constitutes a change, the components of the NYCSRA that are subject to the maintenance process, and how to initiate a change to the NYCSRA.

1.3 Purpose

The New York City Sub-Regional ITS Architecture is not a static set of outputs. The NYCSRA will change as new priorities and strategies emerge through changes in the regional transportation plans and policies, as ITS projects are implemented, and as new ITS needs and services evolve in the region. The Maintenance Plan describes a change management process to keep the NYCSRA current to reflect the region's existing ITS capabilities, projects, plans and policies. The objective of the Maintenance Plan is to provide formal change control of the NYCSRA throughout all stages of process. The Maintenance Plan will address the following key issues:

- What constitutes a change? What individual or group of individuals will be responsible for maintaining the NYCSRA? What is each Stakeholder's role and responsibility in maintaining the NYCSRA? Who will support the effort, and who will manage or have oversight for the maintenance effort?
- What is the architecture baseline? What outputs/documents will be maintained? How will the versions be kept?
- What is the change management process? How will changes be introduced and by whom? How often will changes to the regional ITS architecture baseline be performed? Who will evaluate the changes for inclusion into the baseline? What group will review the change recommendations and make the decisions on what changes are accepted and which are not? Who will actually modify the regional ITS architecture baseline?

1.4 Report Organization

This Maintenance Plan has been prepared in support of the New York City Sub-Regional ITS Architecture. This Maintenance Plan is broken into 6 chapters to facilitate the different parts of a maintenance plan:

- **Chapter 1: Introduction** - Provides introductory and background information about this document, its purpose and why it is needed.

- **Chapter 2: Regional ITS Architecture** – This section contains a description of National ITS Architecture, a review of the FHWA Rule and FTA Policy, and a summary of the New York City Sub-Regional ITS Architecture.
- **Chapter 3: Changes** – This section describes the different types of changes that may require an update to the NYCSRA.
- **Chapter 4: Roles and Responsibilities** – This section defines the roles and responsibilities of each Stakeholder in the maintenance of the NYCSRA.
- **Chapter 5: Baseline** – This section describes what documents, and in what form are to be maintained by the process and procedures documented in this Maintenance Plan.
- **Chapter 6: Change Management Process** – This section defines the process and the procedures to be used for initiating, accepting and updating any changes to the NYCSRA.

Readers who are unfamiliar with regional ITS architectures and their benefits should skim through Chapter 1, Introduction and read Chapter 2, which provides information about regional ITS architectures and their uses. All readers should then skim through Chapters 3 and 4 to familiarize themselves with what types of changes may affect the NYCSRA, and the roles and responsibilities of the stakeholders; and Chapter 5 to familiarize themselves with what documents are subject to the change management procedures documented for the maintenance plan. Only readers who will be involved with the maintenance of the NYCSRA need to be familiar with Chapter 6, which presents the change management process.

The success of the change management process outlined in this Maintenance Plan is highly dependent on the participation of all Stakeholders identified in the NYCSRA. Without each Stakeholder's participation in properly updating the NYCSRA, the success of the change management process and the utility of the NYCSRA effort will diminish.

2 Regional ITS Architecture

2.1 What are Intelligent Transportation Systems (ITS)?

Until recently, the building and improvement of a transportation infrastructure meant the civil and mechanical construction or enlargement of roads, bridges and tunnels, as well as the associated enterprises that provide the vehicles (including public and private transit agencies, trucking, public safety and personal) that travel on the infrastructure. The use of ITS technologies to more efficiently operate and manage a region's transportation systems is increasingly important as travel demand steadily increases and the opportunities to build new infrastructure becomes prohibitively expensive because of the high costs and lack of available resources, including land space. This makes the deployment of ITS technologies to make more efficient use of the existing transportation network an attractive alternative.

As one component of a larger transportation infrastructure, ITS refers to the application of data processing, data communications, and systems engineering methodologies with the purpose of improved management, safety and efficiency of the surface and public transportation network. These ITS technological and management advances can address the following: the overall mobility needs of a region, the travel requirements of transportation network users, and the development, operation, management and maintenance needs of the transportation system providers, both public and private.

ITS provides agencies and their customers a means to address current urban problems, as well as anticipate and address future demand through a coordinated, intermodal approach to transportation. The application of ITS allows agencies to use modern technologies to better monitor their systems, providing the agencies with more accurate information to make more informed decisions on safely operating their systems. ITS also allows agencies to distribute this information to other agencies and to the public, so each can make more informed transportation decisions.

2.2 National ITS Architecture

The National ITS Architecture provides a common framework for planning, defining, and integrating intelligent transportation systems and defines:

- The functions (e.g., gather traffic information or request a route) that are required for ITS.
- The physical entities or subsystems where these functions reside (e.g., the roadside or the vehicle).
- The information flows and data flows that connect these functions and physical subsystems together into an integrated system.

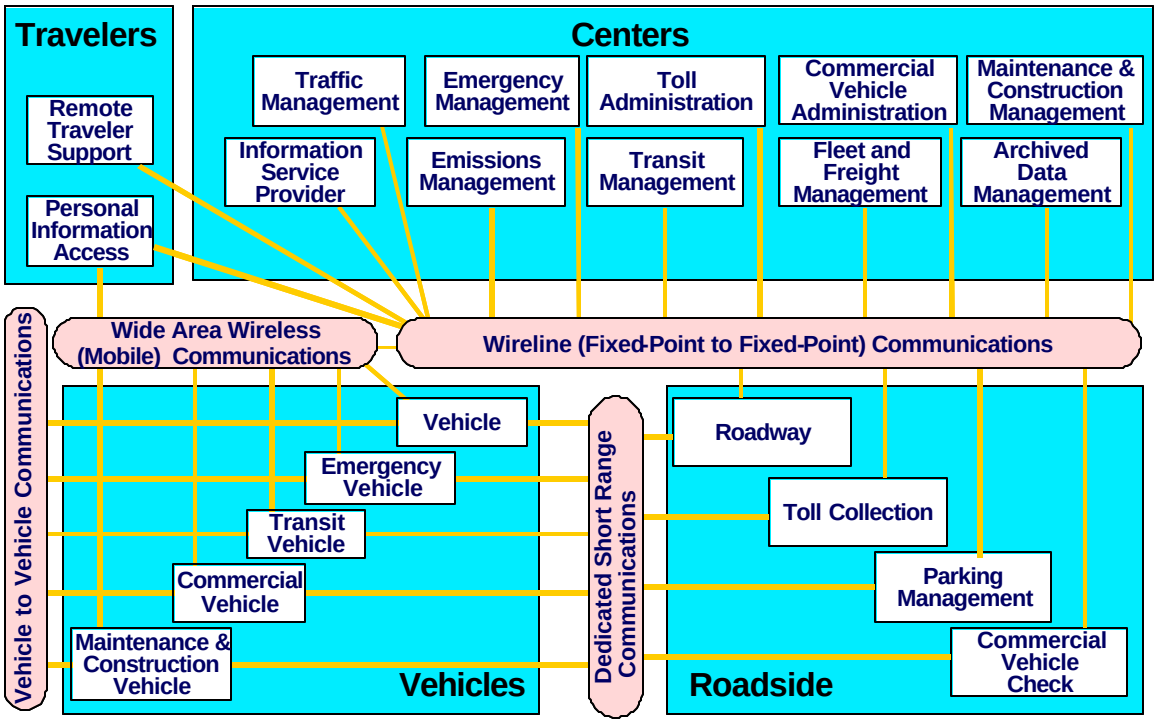


Figure 2-1 – National ITS Architecture Sausage Diagram

The National ITS Architecture also introduces the concept of Market Packages. Market packages define potential ITS deployments in both narrative and diagrammatic form. Market package diagrams show which ITS systems are required to work together (across different operators, whether public or private) to deliver a given transportation service. Market packages are designed to address specific transportation problems and needs and relate back to the ITS services and their more detailed requirements.

2.3 FHWA Final Rule and FTA Final Policy on ITS Architecture and Standards

In 1997, Congress passed the Transportation Equity Act for the 21st Century (TEA-21) to address the need to begin working toward regionally integrated transportation systems. To implement Section 5206(e) of TEA-21, which requires ITS projects to conform to the National ITS Architecture (NITSA) and Standards, the Federal Highway Administration (FHWA) issued 23 Code of Federal Regulations Parts (CFR) 655 and 940, entitled "Intelligent Transportation Systems (ITS) Architecture and Standards" on April 1, 2001. Concurrently, the Federal Transit Administration (FTA) issued a Final Policy entitled "National ITS Architecture Policy on Transit Projects". The intent of the FHWA Final Rule (commonly referred to as Rule 940) and Final FTA Policy is to provide policies and procedures by which to implement ITS projects in an efficient manner and to conform to the National ITS Architecture.

The purpose of the Final Rule/Final Policy is to accelerate the deployment of integrated Intelligent Transportation Systems (ITS) by requiring development of a regional ITS architecture. This regional ITS architecture, which is based on the National ITS Architecture but customized to meet a region's particular needs, provides a plan by which a region can efficiently deploy ITS systems in a manner allowing for integration of these systems.

The Final Rule/Final Policy defines 9 required components that make up a regional ITS architecture. These components are:

1. Description of the region
2. Identification of participating agencies and other stakeholders
3. Operational concept
4. Agreements required for implementation
5. System functional requirements
6. Interface requirements
7. Identification of ITS standards
8. Sequence of projects required for implementation
9. Process for maintaining your Regional ITS Architecture

The contents of this document satisfies the last requirement of the FHWA Final Rule/FTA Final Policy.

2.4 New York City Sub-Regional ITS Architecture

With the participation and support of various transportation agencies in the New York City region, the NYCSRA was developed through a series of functional area meetings, workshops, and individual discussions. These functional area meetings, or workshops, focus on the issues, services, and interfaces of a set of stakeholders from a common area of ITS.

A *Draft* and *Final* functional area workshop was held for each area of ITS relevant to the New York City region. These areas were Traffic Management, Advanced Public Transportation, Incident Management/Emergency Management, Commercial Vehicles/Electronic Toll Collection, Maintenance and Construction, and Traveler Information Systems.

In the Draft Workshop, stakeholders made initial decisions about what stakeholders will participate in which ITS services, and key architectural decisions were framed and collected. "Customized" Market Packages were interactively created during the workshops. The emphasis of the first workshop is ITS architecture (what information is exchanged between which stakeholder ITS elements), plus a sense of the priority of various services. The draft architecture for the functional area was published for

stakeholder review on the website shortly after the draft workshop. Stakeholders commented on the draft ITS architecture and their comments collected, categorized and analyzed.

In the Final functional area workshop, the ITS architecture was quickly presented, and all comments received beforehand. Especially where a comment requested a change that requires other stakeholder's concurrence, these comments were formally prepared and presented, and stakeholder discussion was encouraged. Other comments (not submitted beforehand) from the participating stakeholders were also welcome and encouraged. Comments were generally stimulated by the review of the draft architecture as it pertained to the functional area.

A draft ITS deployment plan and integration strategy was then presented based on stakeholder input from the workshops. Stakeholder comments were collected, and used afterwards to develop the updated draft deployment plan and integration strategy documentation for each functional area. The results and outputs of the NYCSRA, which includes detailed interconnects and information flows based on the customized market packages, are presented in the Implementation Plan document.

3 Changes

3.1 Introduction

The New York City Sub-Regional ITS Architecture is a blueprint for the deployment of ITS systems in the region for the next twenty years. The NYCSRA was created as a consensus view of what ITS systems the Stakeholders in the region have currently implemented and what systems they plan to implement in the future.

However, the NYCSRA is not a static product or set of outputs. As ITS projects are deployed, priorities change, and the regional transportation needs evolve, the regional ITS architecture will need to be updated to properly reflect these changes.

Maintenance of the NYCSRA is important to the continued use and development of the architecture. A properly updated architecture will allow the NYCSRA to be used effectively by the entire ITS community, including transportation planners, project managers, and managers. The NYCSRA can be used by the ITS community to develop priorities for implementing ITS projects, to write project requirements, and to develop agreements between stakeholders for the benefit of the agency, and for the region as a whole. The NYCSRA can also be used to obtain approval for federal funding of ITS projects (See the Use Plan document for an explanation of how the architecture may be used).

In recognition of the need to update regional ITS architectures, the Final Rule/Final Policy specifically added a requirement, which states: *"The agencies and other stakeholders participating in the development of the regional ITS architecture shall develop and implement procedures and responsibilities for maintaining it as needs evolve in the region."*

This Section provides an introduction to the Maintenance Plan developed to maintain the NYCSRA. This Section first defines why changes in the architecture occur. The Section then defines what changes should be reflected in the NYCSRA.

3.2 Why Changes Occur

There are many actions that may cause a need to update a regional ITS architecture. The following are a list of several actions that may necessitate a change in the NYCSRA. Each section describes the action that may necessitate the change, and generally will include an example of that action.

3.2.1 Changes to the Project Definition

As funding for a project is identified, and as a project is implemented, the project may add, subtract or modify ITS elements, interfaces, or information flows. Changes which affect the operational concepts of the architecture should be updated reflected in the architecture.

For example, as a project is implemented, a new interface to an agency may be identified, and a previously identified ITS element may no longer be needed. The new interface to the agency and the information (data flow) to be transmitted should be added to the NYCSRA, and the ITS element that is no longer needed can be deleted from the NYCSRA.

3.2.2 Project Addition/Deletion

Occasionally an agency may identify a new transportation need or service that the agency wishes to provide, or that the transportation need or service is no longer needed. The agency will likely propose a new project, cancel an existing project, or modify an existing project, as appropriate. If the change in project affects the operational concepts described in the NYCSRA, those aspects of the regional ITS architecture should be added, deleted or modified.

For example, an agency determines there is a need for a new transportation service not defined in the NYCSRA. The agency creates a new project, which includes a new system (ITS Element), and requires sharing information (interface, data flow) with another agency. The new ITS elements, interfaces, and data flows should be added to the NYCSRA.

3.2.3 Changes in Project Status

The NYCSRA currently defines all ITS Elements and data flows as Existing, or Planned. As projects are deployed, or as new projects are added, the status of the ITS Elements, Transportation Services (market packages) and data flows should be updated as Planned or Existing. Elements, services and flows are considered existing when they are substantially complete and tested.

This is a relatively minor change to the NYCSRA, but the NYCSRA should be updated nevertheless for clarity and consistency.

3.2.4 Changes in Project Priority or Regional Needs

A requirement of the Final Rule/Final Policy is to develop a Project Sequence for implementing projects, or more specifically, transportation services. A Project Sequence is included in the NYCSRA. However, due to funding constraints or technological changes, a project planned for the region may be delayed or accelerated. Such changes should be reflected in the NYCSRA.

3.2.5 Changes in Agreements

The NYCSRA is a consensus architecture, that is, all the stakeholders involved agreed that these are the ITS systems to be provided in the region. Since many of the ITS systems in the NYCSRA involves interfaces between different agencies, there is an implicit agreement between those agencies on the existence of the interfaces and what information is to be shared between the agencies. This agreement may be implied, or the agreement may be formalized with a written memorandum of understanding. If the

nature of these agreements change, these changes may necessitate a change in the NYCSRA.

3.2.6 Changes in Regional Needs

Over time the needs in a region can change and the corresponding aspects of the NYCSRA will have to be updated to reflect these changes. These changes might be expressed in updates to planning documents such as the Regional Transportation Plan.

3.2.7 New Stakeholders

As ITS systems are deployed and the benefits of integration are realized, additional Stakeholders may be identified. New Stakeholders may provide new transportation services for the region, or be an organization that did not exist when previous version of the NYCSRA was developed. As these new Stakeholders and their transportation services are identified, the architecture should be updated to reflect the new Stakeholder's role in the regional view of ITS. The ITS systems they operate and their interfaces should also be reflected in the NYCSRA.

3.2.8 Changes in Other Architectures

The NYCSRA includes not only elements and interfaces within the New York City region, but also interfaces to elements in adjoining regions. Changes in the regional ITS architecture in these regions may necessitate changes in the NYCSRA to maintain consistency between the two architectures. The NYCSRA may also overlap with a statewide ITS architecture, and a change in one architecture may necessitate a change in the other.

For example, an stakeholder with ITS Elements in the NYCSRA region may have interfaces with an ITS Element, which is reflected in another regional ITS architecture. If the status of that ITS Element or interface changes in that regional ITS architecture, it may be necessary to reflect the same changes in the NYCSRA.

3.2.9 Changes in the National ITS Architecture

The NYCSRA is currently based on Version 4.0 of the U.S. National ITS Architecture, and reflects the region's specific needs based on that version. The National ITS Architecture may be expanded and updated from time to time to include new user services or new information flows, based on experiences and needs identified throughout the nation.

As these new services and information flows are identified, the stakeholders in the region may decide it would like to provide these new services as well. At this point, the region may decide to update the NYCSRA to reflect the new National ITS Architecture version.

3.3 Changes to be Reflected in the NYCSRA

This previous section provided examples of the types of changes that may affect the NYCSRA. However, when such a change occurs, it does not necessarily require that the NYCSRA be updated. For example, it is not necessary to update the NYCSRA just because a new version of the U.S. National ITS Architecture is released, particularly if it has no consequences on the existing NYCSRA. This section provides specific guidelines on when changes necessitate an update of the NYCSRA.

In general, only changes that affect the existing NYCSRA or architecture documents, or involves data flows with other agencies, must be updated in the architecture. Such changes include:

- Changes in operational concepts agreed upon in the NYCSRA, such as how a transportation service is provided
- Changes in the nature of data flows between agencies. Such changes may include adding or deleting data flows, or modifying the information to be exchanged between agencies.

Individual agency "projects", that is, ITS projects that do not involve other agencies, do not have to be included in the NYCSRA.

4 Roles and Responsibilities

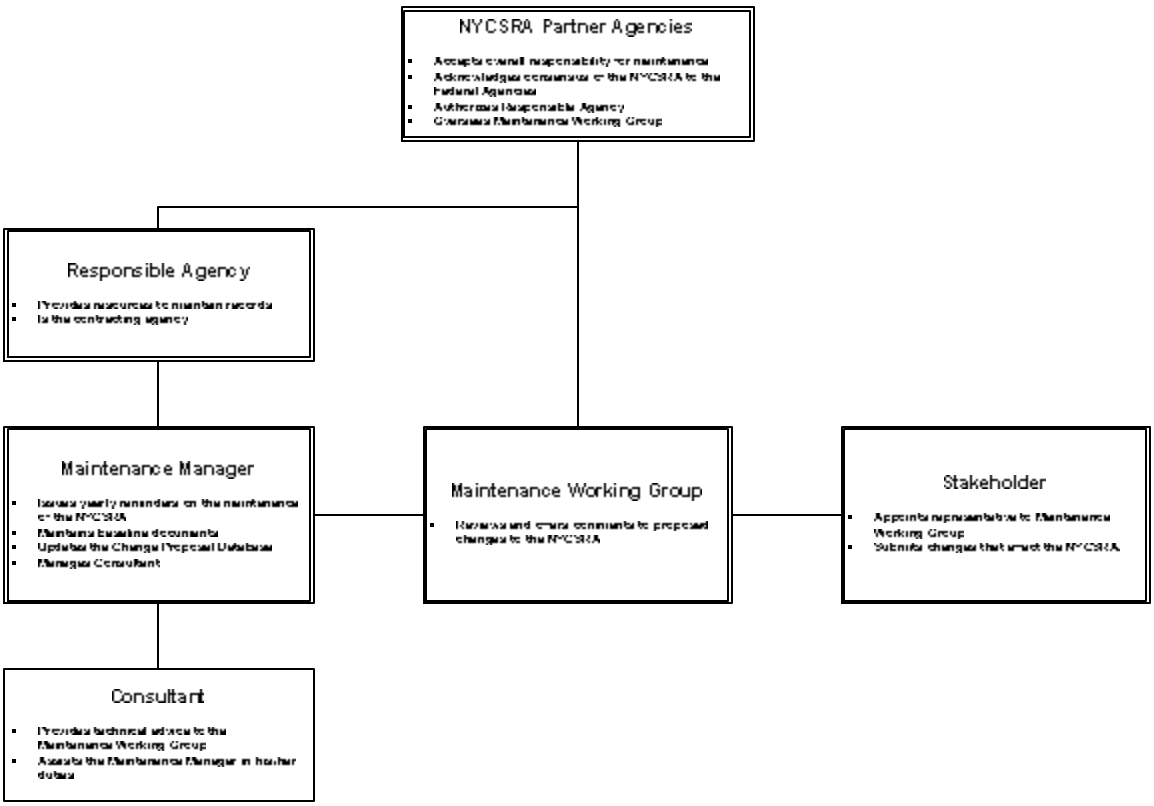
4.1 Introduction

It is important to clearly define the roles and responsibilities of agencies and their personnel for maintaining the architecture. Without each Stakeholder understanding their roles and properly performing their responsibilities, maintenance of the NYCSRA will be difficult and may fail, rendering the NYCSRA useless in the future.

This Section addresses the issue of the roles and responsibilities of the various stakeholders in the maintenance of the NYCSRA. The Maintenance Plan for the NYCSRA defines roles and responsibilities for the following stakeholders or groups of stakeholders:

- Partner Agencies – The lead agencies formally responsible for owning and maintaining the NYCSRA. Currently, the partner agencies for the NYCSRA are the Metropolitan Transportation Authority, New York City Department of Transportation, New York State Department of Transportation, and the Port Authority of New York and New Jersey.
- Maintenance Working Group – The group of persons responsible for reviewing proposed changes to the NYCSRA
- Responsible Agency – The Partner Agency responsible for supporting the maintenance of the NYCSRA. The Responsible Agency is currently identified as New York State Department of Transportation.
- Maintenance Manager – A person responsible for overseeing and guiding the maintenance efforts.
- Stakeholders - Any government agency or private organization that has a role in providing transportation services in the region.
- Consultant – A private firm hired to provide technical advice and services to the Partner Agencies and/or the Maintenance Working Group

Figure 4.1 depicts the relationships for each of these groups and summarizes the roles and responsibilities that will be covered below.


NYCSRA Partner Agencies
Responsible Agency
Maintenance Manager
Maintenance Working Group
Stakeholder
Consultant

The NYCSRA Partner Agencies currently consist of the Metropolitan Transportation Authority, the New York City Department of Transportation, the New York State Department of Transportation, and the Port Authority of New York/New Jersey.

4.2.2 Roles and Responsibilities

For the maintenance of the NYCSRA, the Partner Agencies have the following responsibilities:

- Have overall responsibility for updating and maintaining the NYCSRA
- Jointly submit the consensus NYCSRA to the responsible federal agencies
- Select a Responsible Agency to allocate resources to maintain the NYCSRA documents and be a contracting agency as necessary
- "Sponsor" proposed changes to the NYCSRA
- Assign a person to be the Maintenance Manager for the NYCSRA

4.3 Stakeholders

4.3.1 Introduction

A Stakeholder is any government agency or private organization involved with providing transportation services in the region. Each Stakeholder by definition, for the purpose of the NYCSRA, owns, operates, and/or maintains at least one ITS element in the NYCSRA. Thus, that Stakeholder must be identified in the Turbo Architecture of the NYCSRA. The Maintenance Manager shall maintain a list of current Stakeholders.

The success of the change management process outlined in this Maintenance Plan is highly dependent on the participation of the Stakeholders identified in the NYCSRA. Each Stakeholder is responsible for completing and submitting Change Proposal Forms regarding any changes to that Stakeholder's ITS Elements so the NYCSRA can be properly updated to reflect those changes. Without each Stakeholder's cooperation in updating its own ITS Systems in the NYCSRA, the change management process will not succeed and the accuracy and usefulness of the NYCSRA effort will diminish over time.

Each Stakeholder should assign an Authorized Representative for their agency. This Authorized Representative is authorized to make policy-related decisions for his/her agency. Any proposed changes to the NYCSRA that directly affect the Stakeholder must be approved and signed by the Authorized Representative.

The Authorized Representative may also assign point-of-contacts for the agency to assist with day-to-day communications. The point-of-contacts shall receive updates regarding the status of the NYCSRA and will be responsible for distributing these updates to the appropriate persons within their agency. These communications updates may include new Change Proposals submitted, information about upcoming meetings or

updates to the website. The point-of-contact shall also receive annual reminders to update that Stakeholder's ITS Elements or interfaces in the NYCSA, if any.

4.3.2 Roles and Responsibilities

For the maintenance of the NYCSRA, each Stakeholder has the following responsibilities:

- Appoints an Authorized Representative, allowed to make policy decisions for the Stakeholder. The Authorized Representative must approve and sign all Change Proposals to the NYCSRA that affects the Stakeholder
- May appoint point-of-contacts to receive communications regarding updates and status of the NYCSRA
- Reviews and updates its ITS Elements and interfaces in the NYCSRA on an annual basis. If the need arises, Stakeholders may update their ITS Elements and interfaces more frequently
- Provides the Maintenance Manager with an updated contact list of all Authorized Representative(s) and point-of-contact(s)

4.4 Responsible Agency

4.4.1 Introduction

The NYCSRA Partner Agencies shall appoint one of the Partner Agencies to formally maintain the NYCSRA and the official records of the NYCSRA. The Responsible Agency shall assign resources for making the physical changes to the NYCSRA baseline, and for coordinating the maintenance of the NYCSRA. The Responsible Agency shall act as the contracting agency for procuring a consultant, updating the Memorandum of Understanding, and any other contracting needs that may occur.

There should be an agreement relationship between the Responsible Agency and the other NYCSRA Partner Agencies.

4.4.2 Roles and Responsibilities

For the maintenance of the NYCSRA, the Responsible Agency has the following responsibilities:

- Identifies resources for maintaining the NYCSRA.
- Is the contracting agency for the Partner Agencies

4.5 Maintenance Working Group

4.5.1 Introduction

The ITS Architecture Maintenance Working Group, or the Maintenance Working Group, consists of stakeholders in the NYCSRA responsible for reviewing submitted Change Request Forms. An opportunity shall be given to the Maintenance Working Group to review all Change Request Forms before any change proposals are accepted and the NYCSRA is updated. The Maintenance Working Group shall meet on an annual basis, or more often as necessary, to review any change proposals to update the NYCSRA.

Any agency identified as a Stakeholder in the NYCSRA (See Section 4.3, Stakeholders) may participate in the Maintenance Working Group. Other agencies or organizations that wish to participate in the Maintenance Working Group, must be identified as a "guest" of a current Stakeholder. FHWA and FTA representatives, and consultants hired to assist with the maintenance of the NYCSRA, may also participate in the Maintenance Working Group.

It is important that all Stakeholders participate in the Maintenance Working Group, because input from the Stakeholders allows the NYCSRA to remain a consensus architecture, reflecting the wishes of the Stakeholders in the region.

The Maintenance Manager shall maintain a list of current participants of the Maintenance Working Group.

4.5.2 Chairperson

For each meeting of the Maintenance Working Group, a Chairperson shall be appointed by the Partner Agency that calls the meeting. The Chairperson shall be responsible for making arrangements, assembling an agenda, calling the meetings, leading the meetings, and approving minutes of meetings. The Chairperson shall be a representative of one of the NYCSRA Partner Agencies.

4.5.3 Roles and Responsibilities

For the maintenance of the NYCSRA, the Maintenance Working Group has the following responsibilities:

- Review submitted Change Request Forms from a technical standpoint and consider the effects of the proposed changes to the NYCSRA and the Stakeholders

4.6 Maintenance Manager

4.6.1 Introduction

The Responsible Agency shall appoint a person to the role of Maintenance Manager to coordinate the maintenance activities of the NYCSRA. The Maintenance Manager shall

be the coordinator and main point of contact for all maintenance activities, including receiving Change Requests Forms, tracking Change Request Forms, distributing documentation, maintaining lists, and sending annual reminders to update the NYCSRA. If a consultant is hired to assist with the maintenance of the NYCSRA, the Maintenance Manager shall be responsible for managing the consultant.

The Maintenance Manager is ideally an employee of the Responsible Agency who is formally tasked with the described efforts, but it is not a requirement. However, the Maintenance Manager shall be an employee of one of the NYCSRA Partner Agencies.

4.6.2 Roles and Responsibilities

For the maintenance of the NYCSRA, the Maintenance Manager has the following responsibilities:

- Maintains the "official" records of the NYCSRA, including the baseline documents, meeting minutes, the Change Request Database, the list of the Authorized Representatives for each Stakeholder, and the list of members of the Maintenance Working Group
- Receives Change Request Forms and updates the Change Request Database
- Sends annual reminders to the Stakeholders to update the NYCSRA
- Manages the Consultant's activities

Some of the Maintenance Manager's responsibilities may be delegated to the consultant, although the Maintenance Manager is ultimately responsible for the performance of these tasks.

4.7 Consultant

4.7.1 Introduction

The Partner Agencies may elect to have a technical consultant advise and assist with the maintenance of the NYCSRA and the baseline documents. This consultant may attend the Maintenance Working Group meetings in an advisory role, but has no vote in any matters.

4.7.2 Role and Responsibilities

For the maintenance of the NYCSRA, the role and responsibilities of the Consultant will vary. However, the responsibilities of the Consultant may include:

- Updates the Change Request Database
- Takes minutes of meetings and provide technical advice to the Maintenance Working Group

- Updates the NYCSRA baseline, as approved by the Partner Agencies. This may include the Turbo Architecture Database, Word documents, list of contacts, market package diagrams, and the Web Site.
- Distributes the baselined documents, database, etc., of the NYCSRA to Authorized Representatives, as directed by the Maintenance Manager.
- Proposes changes to the NYCSRA based on external activities, including ITS Standards and National ITS Architecture work.

5 Baseline

5.1 Introduction

Establishing an architecture baseline requires clear identification of the architecture products that will be maintained, including specific format and version information. This Section defines what documents, databases, etc. are subject to the change management process outlined in this Maintenance Plan, and establishes the specific formats and version information for the initial maintenance activities.

5.2 Baseline Documents and Outputs

Several documents and outputs make up the New York City Sub-Regional ITS Architecture. These documents and outputs are listed in the Table 1. Each of these components and documents was considered for inclusion in the baseline. Rationale is provided for each component or document on why it belongs or does not belong in the baseline.

One of the key outputs that to be maintained is the Turbo Architecture database. This database contains several components of the regional ITS architecture specifically required by Rule 940. These components include:

- Description of the Region
- List of Stakeholders, including key contact information
- Inventory of existing and planned ITS systems in the region
- Documented regional needs and ITS services associated with supporting systems in the region (Market Packages)
- Existing and planned interconnects and information flows for the region.

Additionally, the NYCSRA contains several other components and documents that should be updated at regular intervals. These documents include:

- Project Sequencing Report
- List of Agency Agreements as needed
- Applicable ITS Standards
- Customized market package diagrams

Output	Type of Output	In Baseline	Document/Output Description	Comments
NYMTC ITS Integration Strategy	Word Document	N	Document used to guide the development and planning of ITS projects for NYMTC.	This document is included for reference and is not subject to this change process.
NYMTC Regional Transportation Plan	Word Document	N		This document is included for reference and is not subject to this change process.
NYMTC Transportation Improvement Plan	Word Document	N		This document is included for reference and is not subject to this change process.
New York City Early Deployment Plan	Word Document/ PDF Files	N		This document is included for reference and is not subject to this change process.
Description of the Region	Turbo Architecture	Y		Baseline as part of the Turbo Architecture Database.
List of Stakeholders	Turbo Architecture	Y	List of Stakeholders, including descriptions	Baseline as part of the Turbo Architecture Database.
List of Authorized Representatives	Excel Spreadsheet	Y	List of Authorized Representatives, including points of contact and contact information for submitting and receiving Change Request Forms and other documents.	
List of Maintenance Working Group	Excel Spreadsheet	Y	List of members of the Maintenance Working Group, including contact information.	
Inventory of Elements/Projects	Turbo Architecture	Y	Inventory of Existing and Planned ITS systems in the region. Fields include project definition, scope of work, and scheduled start and end dates.	Baseline as part of the Turbo Architecture Database.
Transportation Services and Market Package Database	Turbo Architecture	Y	Inventory of transportation services provided or to be provided by the region.	Baseline as part of the Turbo Architecture Database.
Operational Concepts	Document	N		Based on the Customized Market Package Diagrams
Functional Requirements Database	Access Database, Hyperlinked files	N		Based on the Equipment Packages – High Level Functional Requirements.
Turbo Architecture Database	Access Database	Y	Indicate what version of Turbo (currently Version 2.0) and National ITS Architecture version (currently Version 4.0).	
Set of Interconnect diagrams	EMF files	Y		

Output	Type of Output	In Baseline	Document/Output Description	Comments
Sausage Diagram	Powerpoint File	Y		Provided as part of the Website.
Customized Market Package Diagrams	Visio File	Y		Also provided as part of the Website.
Elements and Information Flows Website	Hyperlinked files	Y	Contains diagrams and information from the Turbo Architecture Database.	System Descriptions by stakeholder, and system interchange requirements on a system-by-system basis.
Project Sequencing-Dependencies and actual sequence	Word Document	Y	Changes to the sequence shall be documented. Changes may be due to funding constraints. Indicates the dependencies.	Provided as part of the Implementation Plan.
List of Agency Agreements	Word Document	Y	Part of Federal Rule Requirements for Architecture	Provided as part of the Implementation Plan.
List of Applicable ITS Standards	Word Document	Y		Provided as part of the Implementation Plan.
Standards mapping details	Turbo Architecture	Y		Baseline as part of the Turbo Architecture Database.
Implementation Plan	Word Document	Y	Contains the Project Sequencing, List of Applicable ITS Standards, and the List of Agency Agreements	
Use Plan	Word Document	Y	Descriptions and use cases on how to use the regional ITS architecture.	
Maintenance Plan	Word Document	Y	Change management process to maintain the NYCSRA.	This document shall be maintained under configuration control.
Final Architecture Document	CD-ROM	Y	Compilation of documentation from previous tasks, not all of which shall be a baseline.	Compilation of documentation from previous tasks, not all of which shall be a baseline.
Meeting Minutes	PDF Files	N	Minutes of Functional Area meetings, Steering Committee meetings, and Maintenance Working Group meetings.	All meeting minutes will be approved and saved.
Website	Hyperlinked files	Y	Includes links to the customized market packages, minutes, and other documents identified in this baseline.	Provided as part of the Final Architecture Document CD-ROM.
Change Request Database	Access Database	Y		

5.3 Version Control

Over time, the contents of each component and document in the baseline may change. In addition, documents and outputs may be deleted or added to the baseline list. To manage the changes to the components and documents, version numbers are to be assigned to each document and output as changes are approved. This Section defines the guidelines to assign version numbers.

All baseline documents subject to the change management process outlined in this Maintenance Plan shall have a version number and a revision date clearly identified. As changes to documents and outputs are made and accepted, each revised version of a document shall be assigned a new version number. The version number shall be assigned by the Maintenance Manager in accordance with the version control guidelines provided. The revision date shall be the date the document was approved and distributed.

5.3.1 Version Control Guidelines

The version control guidelines are as follows:

- Each approved, baseline document shall have a version number consisting of at least 3 digits, in the format *p.ss*, where p is the major revision number, and ss is the minor revision number.
- The version number and the revision date shall be assigned by the Maintenance Manager.
- The first, approved version of a baseline document shall be Version 1.00.
- Minor revisions approved shall be incremented in the second order, that is, *p.ss*, such that the first minor revision will be *p.01*. Minor revisions may include grammatical or spelling corrections, or modifications to a limited number of architecture flows, elements or stakeholders. These changes may include changes in status (e.g., from future to existing).
- Approved significant changes to the NYCSRA or to a document are considered to be a major revision. Major changes involve multiple and significant modifications to the NYCSRA or to baseline documents. These changes may be a result of a new Regional Transportation Plan, Transportation Improvement Plan, or significant changes to the regional transportation goals or strategies. When a major revision is approved, the version number shall be incremented in the first order. Thus, the first approved major revision shall be Version 2.00.

5.3.2 Revision History

Each baseline document shall include at least one page with a Revision History, indicating the history of the document since the last approved major version. The Revision History shall include the following columns:

- Version number – Version number of the document as assigned by the Maintenance Manager.
- Revision Date – Date the changes was approved
- Filename – File name of the document. To aid the NYCSRA in architecture version document control, the filename of the database should contain the last revision date.
- Author – Principal author of the revisions. This should be the name of the person who compiled and made the approved changes to the document.
- Comments – A comments field to provide a short description of the modifications made since the last major or minor revision.

The revision history shall have an entry for each major revision since and including the original baseline (Version 1.00); and an entry for each minor revision since the last major revision.

A database or list shall be maintained by the Maintenance Manager containing the entire revision history of each baseline document, including all major and minor revisions. This list shall be made available to all Stakeholders. Distribution may be hardcopy and/or electronic means.

A list or database shall also be kept by the Maintenance Manager on all changes made to any of the baselined documents. Where the software allows, the Tracking feature shall be used to reflect the changes since the last revision.

5.4 Baseline Availability

The most current version of each baseline document shall be available to all Stakeholders. It is the responsibility of the Maintenance Manager to have access to the versions of the baseline documents and make it available for distribution. All baseline documents shall be available by hardcopy and/or electronic means, as appropriate.

6 Change Management Process

6.1 Introduction

Once a baseline is defined, the process for making changes to this baseline must be established. The purpose of this Section is to define the procedures to initiate, approve and document proposed changes to the NYCSRA or any other documents included in the baseline. All Stakeholders in the NYCSRA shall be obligated to use the change management process outlined in this Section to initiate changes to the NYCSRA.

These procedures shall apply to all changes to any of the documents or outputs identified in the NYCSRA baseline. This Maintenance Plan is part of the NYCSRA baseline, and is also subject to the change management process. As the NYCSRA is used, implemented and maintained, new change management processes may be added or existing procedures may be modified as required.

6.2 Philosophy

The change management process outlined in this Maintenance Plan is based on the philosophy that change proposals to the NYCSRA only needs the approval of the Stakeholders directly affected by the proposed changes. However, the change management process was structured to:

- Formalize the procedures so proposed and approved changes can be carefully tracked for future reference
- Second, to provide other Stakeholders an opportunity to review and comment on the proposed changes

The change management process for the NYCSRA is depicted in Figure 6-1.

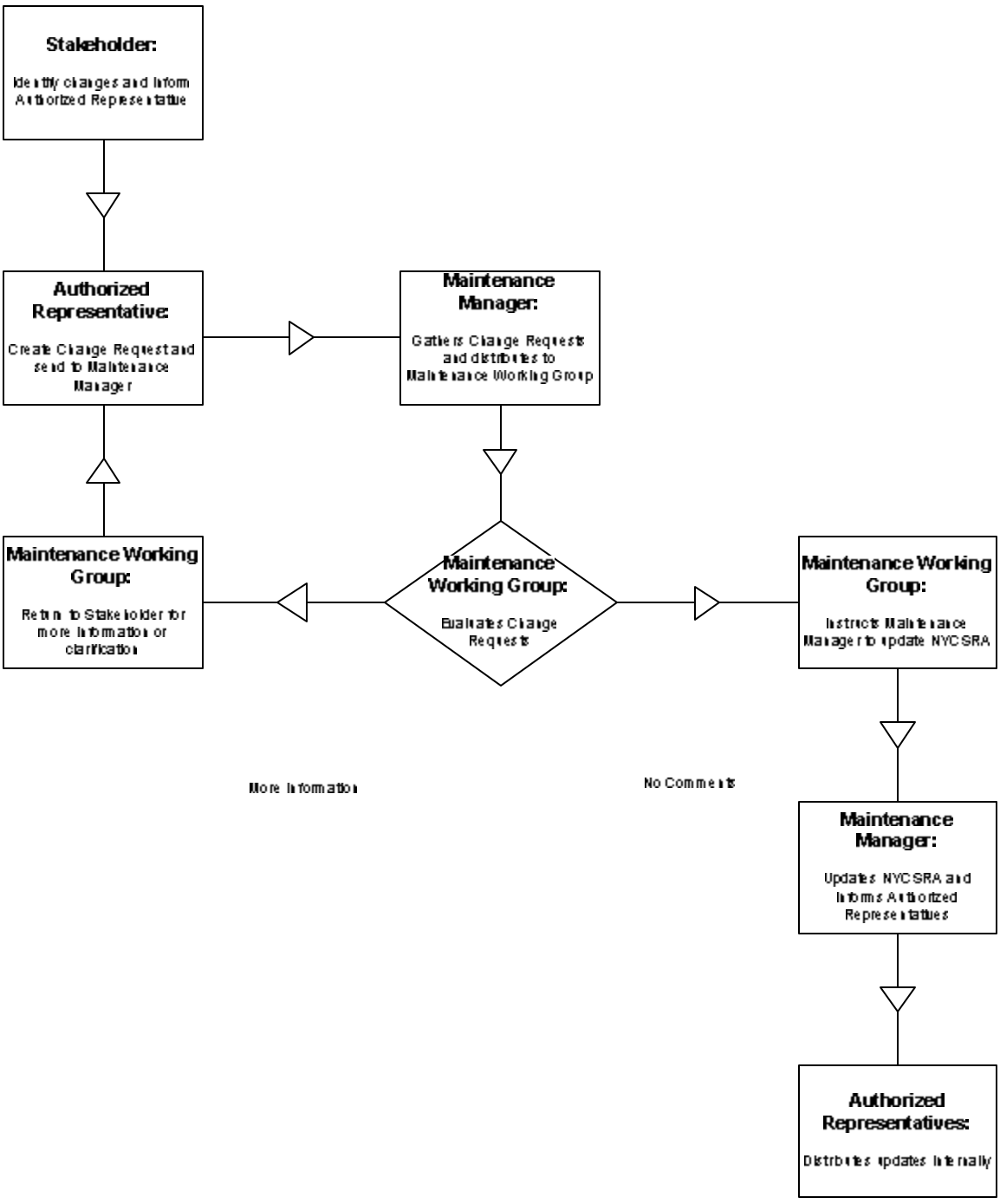
6.3 When to Update

There is no fixed time period or exact event on when the NYCSRA should be updated. If there are no significant changes in policies or status on the deployment of ITS Systems in the region, it may not be necessary to update the NYCSRA for several years.

However, a comprehensive architecture update of the NYCSRA is recommended every three years, concurrent with the formal update of the RTP. This is a natural result of the NYCSRA being a component of the regional planning process. The update is necessary to ensure that the NYCSRA continues to accurately represent the regional view of ITS Systems. The comprehensive update may include adding new Stakeholders, reviewing transportation needs and services for the region, updating the status of projects, and reflecting new goals and strategies, as appropriate. Operational concepts, system functional requirements, project sequencing, ITS standards, and list of agency agreements may also be updated at this time.

Between major updates of the NYCSRA, the NYCSRA shall be reviewed on an annual basis for minor corrections and modifications to reflect other changes that may affect the NYCSRA. These modifications may be a result of changes in project status, new stakeholders, or updates to agency agreements.

The Maintenance Plan shall also be reviewed periodically for required changes. Use of the NYCSRA and modifications to it may differ from what was anticipated during the initial development of the Maintenance Plan. Revising the Maintenance Plan may ensure that the change management process defined is effective.


Stakeholder:
Identify changes and inform Authorized Representatives
Authorized Representative:
Create Change Request and send to Maintenance Manager
Maintenance Manager:
Gathers Change Requests and distributes to Maintenance Working Group
Maintenance Working Group:
Return to Stakeholder for more information or clarification
Maintenance Working Group:
Evaluates Change Requests
Maintenance Working Group:
Instructs Maintenance Manager to update NYCSRA
More Information
No Comments
Maintenance Manager:
Updates NYCSRA and informs Authorized Representatives
Authorized Representatives:
Distributes updates internally

6.4 Change Proposals

This Section outlines the steps for implementing a change proposal of the NYCSRA. The procedure for submitting a Change Request Form consists of:

- Identifying who can submit a Change Request Form
- Defining the proposed changes
- Assessing the impact of the changes
- Reviewing the Change Request Form
- Implementing the decision

6.4.1 Who can Request a Change

For a region with as many stakeholders as New York City, the question of who can submit Change Request Forms is an important one. If literally anyone can propose changes, the region runs the risk of being overrun by requests that will tax scarce resources to review and decide upon. On the other end of the spectrum, if too much formality or paperwork is added to the process then many valid or needed changes may go unexpressed.

Any Stakeholder identified in the NYCSRA is allowed to submit Change Request Forms. A Stakeholder, for the purposes of the Maintenance Plan, is any agency or private organization identified as a participant in the NYCSRA. However, all Change Request Forms must be "sponsored" by one of the NYCSRA Partner Agencies. This effectively indicates that all changes have the approval of an existing, defined stakeholder in the NYCSRA and the approval of one of the NYCSRA Partner Agencies.

If the change proposal is to add a new Stakeholder and that Stakeholder's ITS Elements and Interfaces, the approval of one of the NYCSRA Partner Agencies is sufficient.

Change Request Forms submitted to the Maintenance Manager must have the signatures of the Authorized Representative(s) of all Stakeholders directly affected by the proposed change, and a representative from one of the NYCSRA Partner Agencies. Stakeholder are considered as "directly affected" if the proposed change(s):

- Involves an ITS Element "owned" by the Stakeholder
- Adds an information flow or interface with an ITS Element "owned" by the Stakeholder
- whose information (the source stakeholder) is being processed by an intermediary stakeholder's ITS Element, who then forwards information on behalf of the source

6.4.2 Defining the Change

Stakeholders should propose changes using the Change Request Form, and send the completed form to the Maintenance Manager so the Change Request Database can be updated. A Change Request Form is shown in Figure 6-2. The Change Request Form consists of the following fields:

- Originator Name – Name of person submitting the Change Request Form. This is the contact person if there are any questions about the Change Request Form.
- Date Submitted – Date the Change Request Form was submitted to the Maintenance Manager.
- Originator Telephone/Fax/E-Mail – Contact information for the Originator.
- Originator Agency – Agency submitting the Change Request Form.
- Agency Authorized Signature/Signature Date – Signature and date of the Authorized Representative for the Originator Agency.
- Revision Type – Indicates if the proposed change(s) is a major revision of the NYCSRA, or a minor revision. Major revisions involve multiple and significant modifications to the NYCSRA. A majority of change proposals can be considered minor revisions.
- Sponsoring Agency (if applicable) – NYCSRA Partner Agency sponsoring the proposed changes, if necessary. If the Originator Agency is not one of the NYCSRA Partner Agencies, a NYCSRA Partner Agencies must sponsor the proposed change.
- Agency Authorized Signature/Signature Date – Signature and date of the Authorized Representative for the Sponsoring Agency.
- Description of Proposed Change - The aspects of the NYCSRA to be added, deleted or revised.
- Rationale for Change – Reason for the proposed change(s).
- Affected Agency – Any Agency that is directly affected by the proposed change(s), such as when the proposed change(s) include data interface(s) with the Affected Agency. Additional Agencies, if necessary, should be attached to the Change Request Form.
- Authorized Signature/Signature Date – Signature and date of the Authorized Representative for any Affected Agency or Stakeholder. This signature indicates approval of the Affected Agency of the proposed change(s).
- List of Attachments – To support the understanding of the proposed changes, copies of the sections, lists or diagrams marked with the proposed changes should be included with the Change Request Form. List the materials and attachments here.
- Baseline Documents Affected – Checklist to indicate which baseline documents are affected by the proposed change(s).

New York City Sub-Regional ITS Architecture

Change Request (CR) Form

Originator Name:		Date Submitted
Originator Telephone:	Originator Fax:	Originator E-Mail:
Originator Agency:		Revision Type: _____Major _____Minor
Agency Authorized Signature:		Signature Date:

Sponsoring Agency (if applicable):	
Agency Authorized Signature:	Signature Date:

Description of Proposed Change:		
Rationale for Proposed Change:		
Affected Agency:	Authorized Signature:	Signature Date:
Affected Agency:	Authorized Signature:	Signature Date:
List Attachments:		
Baseline Documents Affected: _____ Website _____Turbo Architecture _____Customized MPs _____Document _____Other (describe)		

To Be Completed By Maintenance Manager		
Change Request Number:	Date CR Received:	Date CR Logged:
Date Initially Discussed:	Disposition: ☐ Accepted ☐ Rejected ☐ More Info	Disposition Comments
Date Discussed:	Disposition: ☐ Accepted ☐ Rejected ☐ More Info	Disposition Comments
Date Discussed:	Disposition: ☐ Accepted ☐ Rejected ☐ More Info	Disposition Comments
Date Approved by Maintenance Working Group:		
Baseline Documents Affected/Version implemented ☐ Turbo Architecture Date: _____ Version: _____ ☐ Website Date: _____ Version: _____ ☐ Customized MPs Date:_____ Version: _____ ☐ _____ Date: _____ Version: _____ ☐ _____ Date: _____ Version: _____ ☐ _____ Date: _____ Version: _____		

Figure 6-2 – Change Request Form

Information on the Change Request Form to be completed by the Maintenance Manager include:

- Change Request Number - To be assigned by the Maintenance Manager for tracking purposes.
- Date CR Received – Date the Change Request Form was received by the Maintenance Manager.
- Date CR Logged – Date the Change Request Form was logged into the Change Request Database.
- Date Initially Discussed – Date the proposed change(s) was discussed by the Maintenance Working Group, or the date the proposed change(s) was distributed to the Maintenance Working Group for review.
- Date Discussed – Subsequent dates the proposed change(s) was reviewed by the Maintenance Working Group, if appropriate.
- Disposition – Disposition of the proposed change(s) after the discussion. Approved, Rejected, More information needed.
- Disposition Comments – Additional comments, if applicable. If the disposition was More Information needed, indicate the information here.
- Chairperson Signature – This is the signature of the Chairperson after the Change Request Form is reviewed by the Maintenance Working Group with no further comments. If the Change Request Form is Withdrawn, the Chairperson shall also sign here. This signature indicates that the proposed change is resolved and closed out.
- Baseline Documents Affected/Version Implemented – If the proposed change(s) was accepted, indicate what Baseline Documents were changed to reflect the accepted change(s), and in which version (Date and Version number) was the accepted change(s) implemented in.

A Change Request Database shall be maintained by the Maintenance Manager to track Change Request Forms. The Change Request Database shall include all the information entered on the Change Request Form.

6.4.3 Assessing the Impact

Upon receiving a Change Request Form by the Maintenance Manager, an initial assessment of the Change Request Form is to be made for the impact to the overall NYCSRA or the affected document. The purpose of the assessment is two-fold:

- Verify that the Change Request Form and supporting materials is complete and correct
- Compare with other Change Request Forms and determine if there are any conflicts

If the proposal for NYCSRA modification has an impact on other stakeholders, the evaluator(s) shall contact the Stakeholders to confirm their agreement with the modification. All Stakeholders directly affected by the proposed change(s) must approve and sign-off the Change Request Form before the Maintenance Working Group considers the proposed changes.

There are several options as to who performs the initial assessment, including:

- A consultant, hired to support the maintenance activities of the NYCSRA
- The Maintenance Manager
- Maintenance Working Group
- The person submitting the change

Each of the above options has positive and negative implications, but the evaluator must have working knowledge of the NYCSRA to evaluate the proposed changes.

6.4.4 Reviewing the Change Request Form

Upon completing the initial assessment, the Change Request Form shall be reviewed at the next meeting of the Maintenance Working Group. Maintenance Working Group meetings can be called by either the Maintenance Manager, or one of the Partner Agencies.

Maintenance Working Group meetings called by the Maintenance Manager will occur, if necessary, on an annual basis. On an annual basis, the Maintenance Manager shall send a reminder to all Stakeholders to update their ITS Elements and Interfaces in the NYCSRA as necessary. If sufficient Change Request Forms are submitted, the Maintenance Manager shall call a Maintenance Working Group meeting to review the Change Request Forms and will act as Chairperson for that meeting. The Maintenance Manager shall distribute the Change Request Forms and all supporting materials to all Stakeholders prior to the meeting for their review and assemble an agenda.

Maintenance Working Group meetings can also be called by one of the Partner Agencies if there is an urgent need to update the NYCSRA quickly. In this event, the Partner Agency shall send a request to hold a Maintenance Working Group, host the meeting, and appoint a Chairperson for that meeting. The Chairperson shall distribute the Change Request Forms and all supporting materials to all Stakeholders prior to the meeting for their review, and assemble an agenda.

The Maintenance Working Group shall have sufficient time to review the proposed changes before the meeting. During the meeting, the Maintenance Working Group shall review the proposed changes and offer any comments.

After each Change Request Form is reviewed, if no further comments are offered by the Maintenance Working Group, the proposed change shall be considered approved, and the Chairperson shall sign off on the Change Request Form.

If additional comments are made that require action, those comments shall be noted on the Change Request Form. These comments are to be addressed by the person submitting the Change Request Form, and then submitted for review again at the next meeting of the Maintenance Working Group.

If a Change Request Form is to be withdrawn from consideration, the Chairperson or the Maintenance Manager must sign-off on the Change Request Form to close out the proposed changes.

At the end of the meeting, the Maintenance Working Group shall agree if all the approved changes to the NYCSRA necessitates a minor revision of the appropriate baseline documents or a major revision. The decision will be based on the number of Change Request Forms approved and the nature of the approved changes (See Section 5.3.1).

Minutes shall be kept for all Maintenance Working Group meetings. Minutes shall include, at a minimum, an attendance list, comments made on each proposed change, and the disposition of each Change Request Form (Approved/Withdrawn/Request More Information). Minutes are to be distributed to all members of the Maintenance Working Group meeting no less that 5 working days after the meeting. Comments are due within 10 working days to the Maintenance Manager. Approved minutes shall be signed by the Chairperson and shall be distributed to all Stakeholders and posted on the website. The minutes provides a recording process for the change management process and provides traceability.

6.4.5 Implementation

After the Maintenance Working Group meeting, the Change Request Form is updated with the disposition information, and the same information is updated in the Change Request Database by the Maintenance Manager. The Maintenance Manager will also notify the originator of each Change Request Form reviewed of the disposition.

The Maintenance Manager shall also update the baseline NYCSRA documents as appropriate. As the approved changes are made, the Tracking feature shall used where available. Upon updating the baseline documents, the Maintenance Manager shall assign new versions numbers and version dates to each baseline document.

Authorized Representatives and points-of-contacts for each Stakeholder shall be notified by e-mail from the Maintenance Manager when baseline documents have been updated. All baseline documents shall also be available to stakeholders from a website or other electronic location, such as an ftp site. It is the responsibility of the Maintenance Manager to ensure the most recent document is available from the website.

Request for hardcopies or access to the baseline documents shall be made to the Maintenance Manager.

After major revisions to the NYCSRA or the baseline documents, the Partner Agencies may elect to distribute all baseline documents to Stakeholders on CD-ROMs.

6.5 Submission to Federal Agencies

On occasion, the NYCSRA must be formally submitted to a Federal Agency for their review. Since the NYCSRA is a consensus architecture, all Partner Agencies shall sign-off on the most current version of the NYCSRA before submission, to acknowledge its consensus.