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Chapter 8: Transit Facilities Data Concepts

In This Chapter

- ▶ Understand Transit Facilities Data Concepts and requirements.
- ▶ Understand how to represent Transit Stops in the SDP.
- ▶ Learn how to map your native data to the elements in the Transit Facilities Branch.
- ▶ Explore the scalability of the Transit Facilities Model for representing complex multimodal and/or multi-agency facilities.

Purpose of the Transit Facilities Branch Model

The SDP's Transit Facilities Branch model and data concepts were developed to meet the complex requirements of the transit stop in the downstate New York region. The full range of stops is covered by the model, from the simple case of single-mode, single-route bus stop, to the complex case of describing a stop in a multimodal facility like Penn Station.

Transit Facilities Branch Definition

The Transit Facilities Branch of the SDP XML Schema includes the entities associated with fixed assets owned or used by transit in the operation, delivery or maintenance of public transit services.

The model includes the following data concepts:

- Transit Facility including Plant Component and its Status
- Amenity
- Passenger Access Component
- Portal
- Transit Stop
- Track

The Transit Stop is “an established location where public transportation customers may board or alight a transit vehicle in revenue service.” Further, the Transit Stop is an important data concept required to meet transit business requirements. However, based on a review and analysis of the New York region’s schedule data requirements, the Transit Stop data concept was not sufficient by itself to capture the transit needs of a complex, multimodal, densely urban environment served by multiple transportation agencies. In the SDP, the Transit Facilities data concepts and models were developed to more effectively describe transit stops, including their locations and amenities.

What is a Transit Facility?

A Transit Facility, in its simplest case, is a bus stop or location where a passenger may board or alight a revenue vehicle. A more complex case of a Transit Facility would be a multimodal, multi-agency facility such as Penn Station. A Plant Component, such as a Transit Stop (one alias is Boarding Area), is a physical part of a larger Transit Facility. These data entities, Transit Facility and Plant Component, are further described in Table 8-1.

The most simple case of a bus stop may be described by a Plant Component whose type is boarding area. Additional amenities such as the marker/sign, shelter, bench, and schedule information may be designated as part of the Transit Facility. The simple case is illustrated in Figure 8-1.

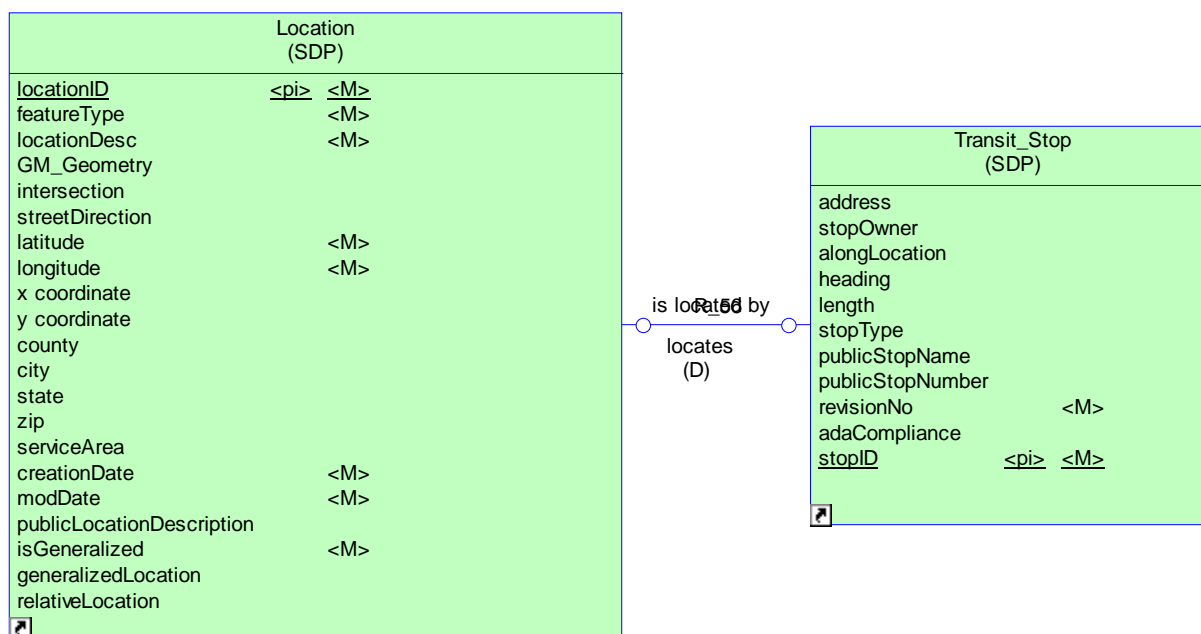


Figure 8-1: Simple Model for Transit Stop

However, rail and other multimodal services do not fit well into this simple model. A Facility may contain many Plant Components and Plant Components may be shared by many facilities. For example, the Port Authority Bus Terminal (PABT) contains facilities for Coach USA, New Jersey Transit, New York City Transit, etc. The operator's facilities may be aggregated into a larger facility called PABT. Together they include Plant Components such as entrances and exits, stairs, elevators, escalators, benches, electronic signs and other amenities. A selection of the Plant Components may serve one or more of the boarding areas or bays for New York City Bus, Coach or New Jersey Transit buses. The conceptual data reference model for the SDP, shown in Figure 8-2, addresses the needs and requirements of both the simple and complex cases.

Although the SDP is designed to handle complex transit facilities/stops, most bus operators will only need to submit a *list of bus stops* (i.e., Boarding Area) and related locations. A bus operator, with only simple bus stops, will only need to submit their data per the simple model for a Transit Stop as illustrated in Figure 8-1. When the Transit Schedule Data Exchange Architecture integrates the data into a regional application, it may transform the data into the more complex model for representing Transit Facility data.

Table 8-1 provides a list of definitions of the entities used in the SDP's Conceptual Data Reference Model (CDRM) for Transit Facilities. The requirements that constrain the CDRM are listed in Table 8-2.

Table 8-1: Description of Transit Facility/Stop CDRM Entities (in alphabetical order)

Entity	Description/Definition
Amenity	Elements of a physical feature, a fixed location, or a Transit Facility. Example: the amenities of a public transportation stop may include shelter, platform announcement panel, park and ride lot, fare vending equipment and benches. Note: An Amenity may be described by one or more characteristics, or attributes, such as the year of construction or its current condition. [GOS, part 7d, p., 2]
Facility Plant Component Association	An association between a Transit Facility and Plant Component. The Facility and Plant Component has a many to many relationship, that is, a Plant Component such as stairs may be part of two facilities, and there may be more than one set of stairs associated with a single facility. This association distinguishes among the many relationships.
Location	This entity represents the location defined in the Transit Gazetteer. It contains the location description for nodes used to describe or relate a transit network over which transit service is provided.
Passenger Access Component	The components used to aid travelers to traverse from one level to another or from one end of a facility to another. Examples include stairs, elevator, escalator, moving walkway. The component may be described by direction (up, down, or both), accessibility for people with disabilities or carts, and other characteristics.
Plant Component	A Plant Component is a physical part of a larger Transit Facility. such as, a boarding area, turnstile, fare vending machine, information booth, escalator, stairs, etc. The types of Plant Components included in this model are Transit Facility, Transit Stop or boarding area, Amenity, Passenger Access Component and Portal. Some examples are boarding area, turnstile, fare vending machine, information booth, escalator, stairs, etc.
Platform Track Association	An association between a specific platform and track. A Platform may be associated with multiple Tracks, for example, platform B at Jamaica Station is flanked on both sides by Tracks 2 and 3. Alternatively, a track may support multiple platforms. This entity distinguishes the combined relationship between one platform and an adjacent track.
Portal	A place where transit customers may enter or exit a Transit Facility, station or stop. Examples include doors and gates to transit facilities.
Track	"A pair of parallel rails, and required ties and fastenings, over which trains move." [LIRR] May also be instantiated as a Lane or Berth.
Transit Facility	A building or center used by a transit vehicle or transit operator for the purpose of parking, storing, maintaining or providing services to transit customers. The SDP uses this entity to represent multiple transit stops, amenities, passenger access components and/or portals.
Transit Stop	An established location where public transportation customers may board or alight a transit vehicle in revenue service. Alias: bus stop, boarding area, ramp, platform.

Requirements for Transit Facilities Data Concept

Based on the environment of the New York Metropolitan region, key requirements¹ that drive the model of a transit facility (stop), both simple and complex, include the Transit Facility/Stop is:

- May represent different types of boarding areas and their constituent parts (e.g., platforms associated with appropriate tracks)
- Unique across all types of stop, amenities, portals (entrances), access components (stairs), etc.
- Logically and physically consistent with location and relative location references
- Logically and physically consistent in its relationship to other stops and Plant Components
- May represent status (temporary, permanent and planned) of each type of Plant Component
- May share and reallocate Plant Components within and among facilities (e.g., represent a subway station as a different facility than the Long Island Rail Road platforms at Penn Station, yet share the entrances, stairs, escalators, signs, etc.)
- May embed stops or facilities within facilities (e.g., Coach and. New Jersey Transit facilities at Port Authority Bus Terminal)

These requirements associated with Transit Facility, Transit Stop and related data concepts are described and categorized in Table 8-2.

Table 8-2: Transit Facilities Requirements

#	Category	Requirements
1	Transit Facility/Stop classification categories	<p>A Transit Facility / Stop may serve different modes, for example,</p> <ul style="list-style-type: none"> • Bus/Commuter Bus • Commuter Rail/intercity rail • Subway • Ferry • Multiple modes (e.g., Grand Central Station, Port Authority Bus Terminal, Penn Station, Jamaica Station) <p>A Transit Stop may be described by a:</p> <ul style="list-style-type: none"> • single mode, single route stop • single mode, multiple route stop • multiple mode, multiple route stop <p>A Transit Stop may be contained in a</p> <ul style="list-style-type: none"> • a facility (i.e., Transit Center) that contains multiple transit stops and shares multiple portals, access equipment (e.g., stairs), and amenities. • collection of stops known by a single name

¹ Stop usage information such as boarding/alighting is associated with pattern and trip events.

Table 8-2: Transit Facilities Requirements

#	Category	Requirements
2	Geometry and spatial characteristics (stops and facilities)	<ul style="list-style-type: none"> Stops may be located using many different geometric references, e.g., field measures using GPS; state plane, map geometry, linear references, and address attributes. Stops may be located using linear references relative to the transportation network (e.g., address, relative location to intersection) as well as relative to the transit network (distance or time traveled from start of pattern or start of track). Stops may be located on- or off-street, when off street, the location may be in a building, underground, in a mall, commercial park, parking lot, or private road. Transit centers may be described as a facility and inherit the geometry of a facility (polygon with levels), or typically, may be represented as a point (centroid or with geometry or shape). Convention for levels: Ground level is considered level “0.” First basement is level “-1”, etc. First floor is considered level “1.” There are cases where the ground floor and level 1 are the same. The level number should correspond to the levels described by the signs and instructions displayed in the facility.
3	Unique identification, naming conventions, and references	<ul style="list-style-type: none"> Stops may contain both internal and public names and numbers. A separate, regional identifier will be created in order to match multiple stops to a single, unique, unambiguously defined Transit Stop or Transit Facility if it is used by many operators. The regional transit stop identifier or name should be unique across transit agency published SDP XML Documents in a regional schedule data repository. (See Shared Facility Naming Conventions, in the SDP Functional Requirements document, Appendix B.) An agency’s Transit Stop identifiers should be unique within the Agency’s authorized SDP XML Document(s). Data Types used for names and numbers <ul style="list-style-type: none"> The data types for internally used names and numbers may be constrained. The data types for public names and number will not be constrained. If the stop name is the name of the closest intersection, then the following convention shall be used (note capitalization): E. on Street @ N. Cross Street. Use of abbreviations for prefix, suffix, and road type are allowed as long as they follow the Addressing Conventions described by the USPS standard naming practices. If the stop name is the same as a nearby landmark or point of interest, then the preferred spelling and abbreviation should use a regionally accessible Landmark Gazetteer. [This feature was not implemented in the demonstration project.]
4	Portal Characteristics	<ul style="list-style-type: none"> Most subway stations have more then one Portal to enter and exit. Portals may be exit only, enter only or both. Some portals are closed during certain hours.

Table 8-2: Transit Facilities Requirements

#	Category	Requirements
5	Stops Contained within a Transfer Cluster or Transit Facility (Center)	<ul style="list-style-type: none"> A Transit Facility may contain multiple transit stops within a single facility. Each stop is described as a Plant Component within the facility. Optionally, a transit stop may be described as a facility. When a transit stop is described as a Transit Facility, the stop is “part of” another Transit Facility. For example, the following stations (i.e., transit facilities) may be defined as “part of” New York Penn Station transit facility: (1) NYCT Subway Station for lines A, C, E (8th Avenue Station) (2) NYCT Subway Station for lines 1, 2, 3 (7th Avenue Station); (3) LIRR; (4) Amtrak; (5) NJ Transit; (6) New York City Buses; (7) NYCT Bus; and (8) PATH (33rd & 6th). A transfer cluster is a collection of transit stops where transfer between stops is convenient <i>and</i> scheduled. A description of a transfer cluster is driven by internal policy considerations. (See Chapter 10 for details on the Transfer Cluster Data Concept.)
6	Stop Ownership	<ul style="list-style-type: none"> The stop owner is an organization that owns and maintains the stop. More than one Transit Agency may use a stop which they do not own; they may refer to the stop using different internal public names and numbers. The Public Name spelling and abbreviations should conform to the list of transit facilities included in the Shared Facilities Naming Conventions (see SDP Functional Requirements Document, Appendix B).
7	Stop Owner and Record Submission	<ul style="list-style-type: none"> A stop record may be submitted by any organization that uses a Transit Stop using their internal stop name and number. If the stop record is submitted by an organization other than the Stop Owner, then it may contain information on the responsible Owner for the stop.
8	Amenities and ADA accessibility	<ul style="list-style-type: none"> Stops may be associated with amenities and other characteristics like lighting, benches, etc. Transit stops and facilities have accessible and non-accessible characteristics. Although entities are developed to capture these features, these characteristics are captured when the stop is represented as a Transit Facility through the Plant Component elements.

Conceptual Data Reference Model (CDRM) Description

The conceptual data reference model for the Transit Facilities Branch is illustrated in Figure 8-2. The CDRM is described as follows:

A Transit Facility represents any building or physical location used by a transit operator or location where the public may access fixed route transit service. A Transit Facility may contain or be contained by other Transit Facilities. For example, the Port Authority Bus Terminal contains levels that are managed by other transit operators such as Coach USA and New Jersey Transit. A Transit Facility may contain multiple Plant Components such as Transit Stops and Amenities. Transit Facilities may share Plant Components. For example, Penn Station Amtrak shares stairs with the New York City Transit subway station for A, C, and E lines.

Several types of Plant Components are allowed in the SDP: Transit Stop (boarding area), Amenity, Passenger Access Component, Portal, Track and even another Transit Facility (e.g., New Jersey Transit facility in NY Penn Station). These component types are associated to each other through the Plant Component description. They are then associated to a Transit Facility or are instantiated as a Transit Facility. In its simplest form, the Transit Facility (Plant Component/Transit Stop) may be described as a bus stop. Finally, each Plant Component includes a status on its current condition, that is, whether the Plant Component is active, planned, or closed, and the dates it was created in the database, opened, closed, and more.

Transit Stop represents a key feature; it may also be known as a boarding area or platform where transit riders board or alight from transit service. The Transit Stop may be contained in a Transit Facility that contains multiple stops, where transit riders enter, depart from or transfer between transit services. A Transit Stop may be contained in a cluster of stops that form a Transfer Cluster wherein a transit rider may change services. The Transit Stop is tied to the physical geometry (as described in Location and referenced by locationID) as well as the linear description of its environment including relativeLocation associated with the nearest intersection, alongLocation, heading and address. Service status conditions such as stopOwner are key attributes to determine usage and responsibility.

A Portal may have defining characteristics such as whether a rider may enter, exit, or pass in both directions, as well as the time the portal opens and closes.

A Passenger Access Component describes the access component, such as a set of stairs, moving walkway, elevator, escalator or other. The direction of travel, obstacle type (an enumeration of a potential obstacle to traversing the connection segment), and other characteristics are described. The Passenger Access Component must be associated with a type of Plant Component that is associated with a Transit Facility.

An Amenity is a physical feature of a fixed location or Transit Facility. Examples of amenities of a public transit stop may include the park and ride lot, shelter, platform announcement panel, and benches. An Amenity must be associated with a type of Plant Component that is associated with a Transit Facility.

A track and platform may have a many to many relationship. The Platform Track entity distinguishes which platform (e.g., Transit Stop) is associated with the track served.

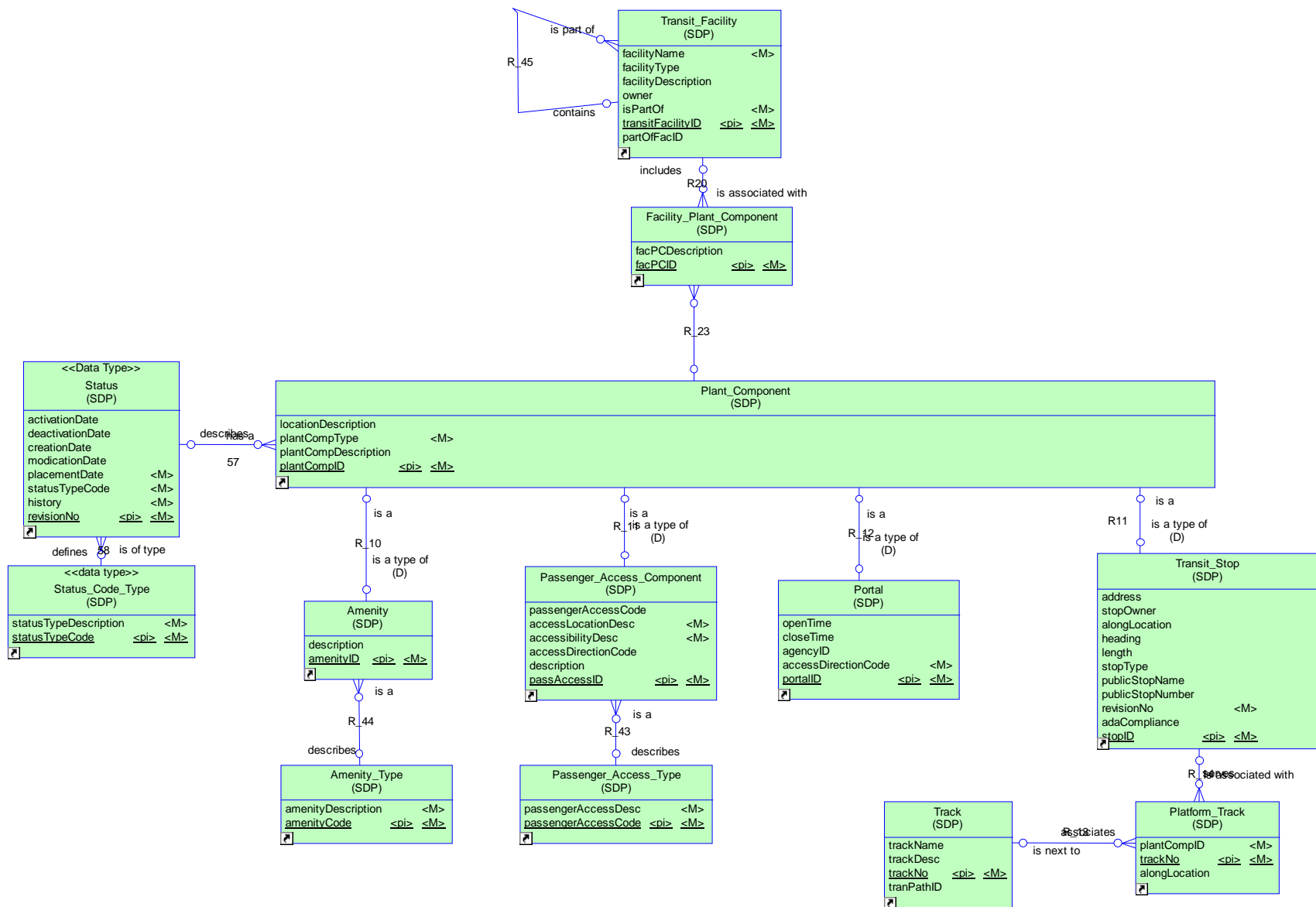


Figure 8-2: Transit Facilities CDRM

High Level SDP XML Schema Model Description for the Transit Facilities Branch

A number of rules were applied to the CDRM to generate the Transit Facility segment of the SDP XML Schema. These included:

- Each entity of the Transit Facilities model was included as a separate element.
- Associated elements, such as Plant Components associated with a Transit Facility, or Tracks associated with a Transit Stop, are embedded in the parent element.
- Most major elements branching off TransitFacilities (i.e., Amenity, Portal, TransitStop, PassengerAccessComponent) also includes a locationID in the event that the “asset” is not contained in a TransitFacility as a plantComponent.

The SDP XML Schema fragment for the high level TransitFacilities branch is illustrated in Figure 8-3.

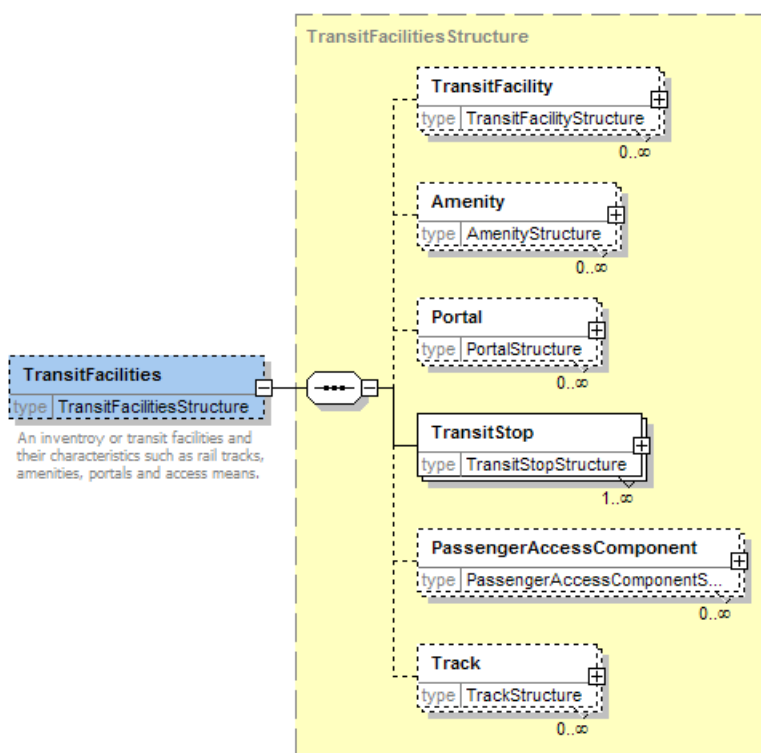


Figure 8-3: High Level SDP XML Schema Fragment for the Transit Facilities Branch

Transit Facility: SDP XML Schema Fragment

In applying the Transit_Facility entity from the CDRM to generate the SDP XML Schema’s TransitFacility element illustrated in Figure 8-4, a number of rules were applied. These include:

- isPartof is a Boolean type that when true, the facility is part of another facility, such as Long Island Bus Mineola Bus Terminal in the Mineola Intermodal Transit Center.
- partOf indicates the transitFacID of which the Transit Facility is part. In the example above, partOf element would contain the transitFacID for Mineola Intermodal Transit Center. There are several “authoritative” names for shared facilities like the Mineola

Intermodal Transit Center. The list of Regional Shared Facility names is included in the SDP Functional Requirements Document, Appendix B.

- plantComponentList is an optional element that contains the list of components contained in the facility. The definition of the Plant Component structure is described below.
- facilityDescription may contain additional characteristics of the facility either in a structured/tagged format or open values.

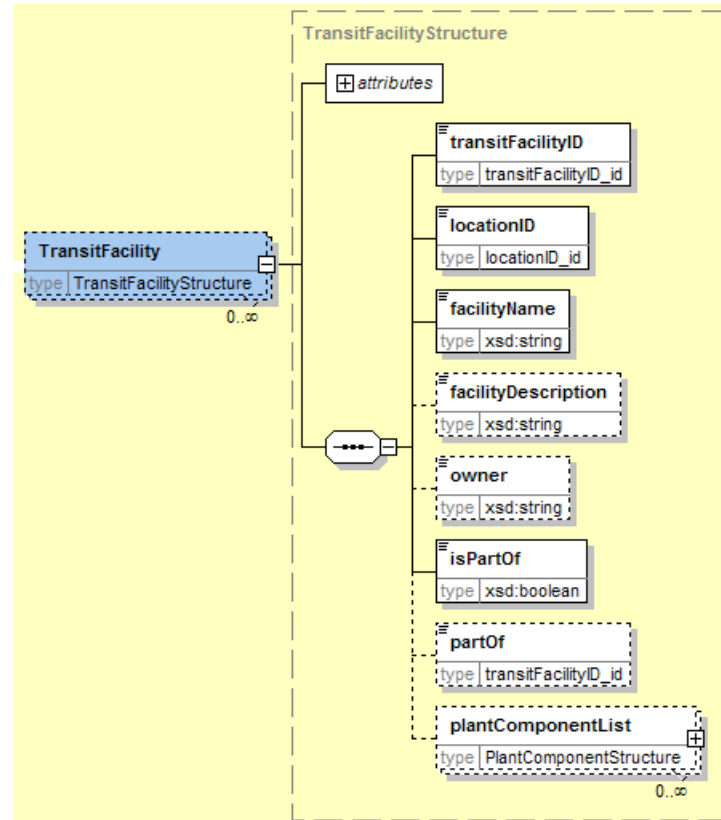


Figure 8-4: SDP XML Schema Fragment for the Transit Facility Element

Plant Component: SDP XML Schema Fragment

In generating the Plant_Component CDRM entity into the SDP XML Schema fragment illustrated in Figure 8-5, a number of rules were applied. The rules include the following:

- plantCompID should be unique within the plantComponentList.
- componentID inherits the identify of the Plant Component it represents, an Amenity will include the amenityID in the Amenity inventory list, a Transit Stop will include the stopID of the TransitStop inventory list.
- plantCompType defines the type of Plant Component. It can be characterized as one of seven types of Plant Component: Amenity, Portal, Passenger Access Component, Transit Facility, Track and Transit Stop.
- locationDescription is a description of the Plant Component in the context of the Transit Facility. Since the region has not yet identified a simple automated way of describing location within a Transit Facility, an expository description should be used.
- Similar to facilityDescription, plantCompDescription is an open format where either a description or structured tags may be stored.

- Each Plant Component should optionally include a status element that describes the operational usage and availability of the component within the Facility.
- The Plant Component does not include a locationID because it inherits the location of its parent TransitFacility.

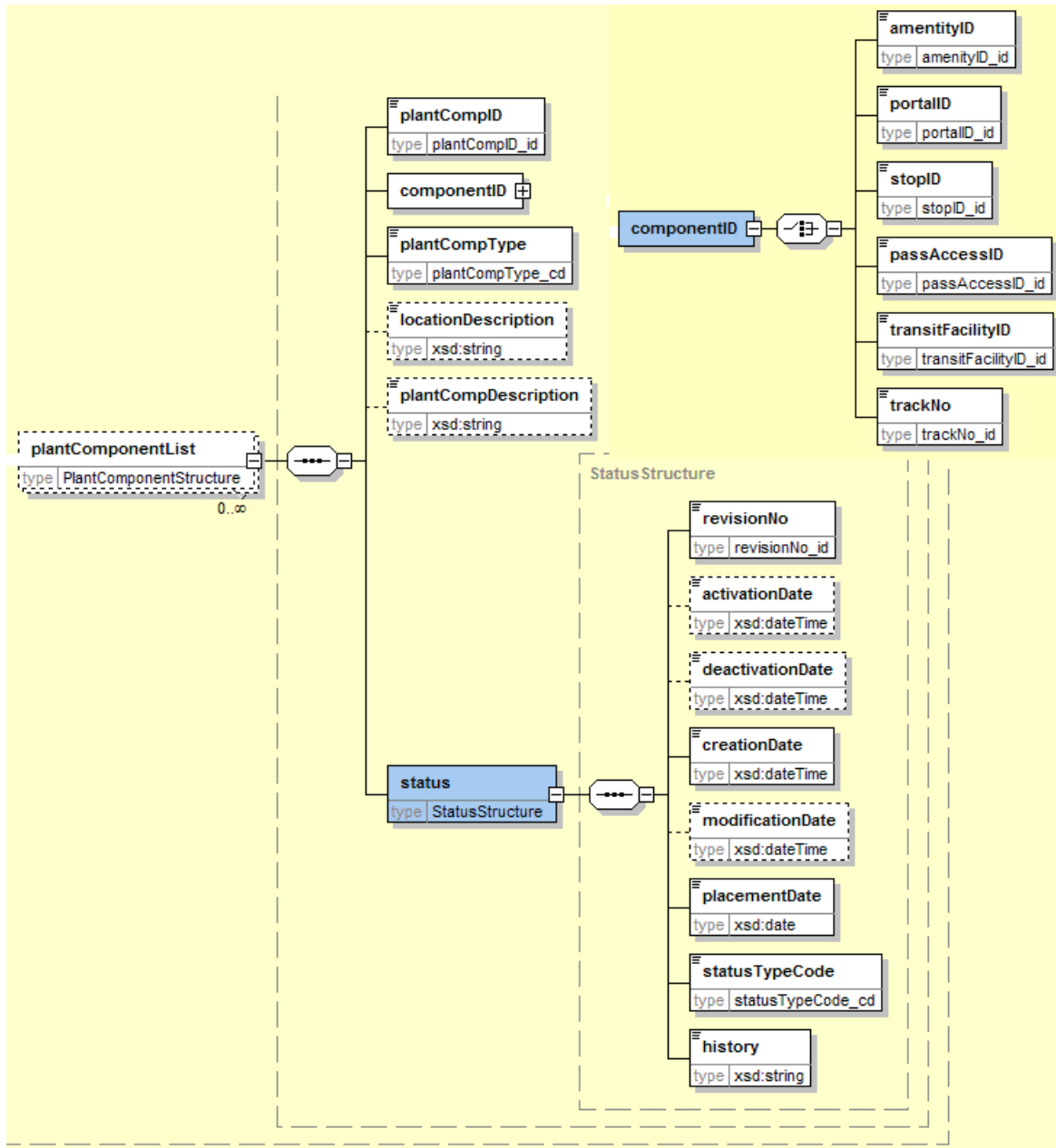


Figure 8-5: SDP XML Schema Fragment for the Plant Component Element

Amenity: SDP XML Schema Fragment

In generating the SDP XML Schema fragment shown in Figure 8-6 for Amenity, from the CDRM's Amenity entity, a number of rules were applied. These rules include the following:

- locationID is included as an optional related element so instances of Amenity may stand as an independent inventory of transit amenities.
- amenityCode was migrated to an enumerated value.
- description is an open value and may be used in an open form or as a structured (tagged) list of additional Amenity characteristics. For example, sidewalk may include additional attributes such as: Sidewalk Surface, Sidewalk Width, Sidewalk Condition, Curb Cuts, Adjacent Land Use [attributes from Bee Line bus stop data set].
- attributes effectiveDate and endDate were included for data configuration management purposes.

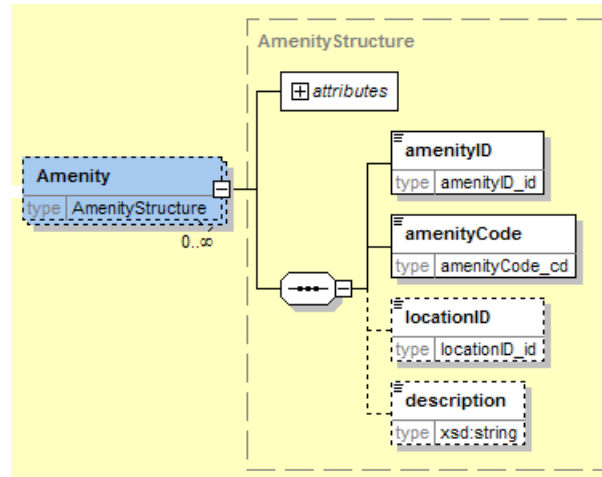


Figure 8-6: SDP XML Schema Fragment for the Amenity Element

Portal: SDP XML Schema Fragment

In generating the SDP XML Schema fragment shown in Figure 8-7 for Portal, from the CDRM's Portal entity, a number of rules were applied. These include the following:

- attributes, effectiveDate and endDate were included for data configuration management purposes.
- locationID is included as an optional related element so instances of Portal may stand as an independent inventory of entrances/exits to transit facilities.

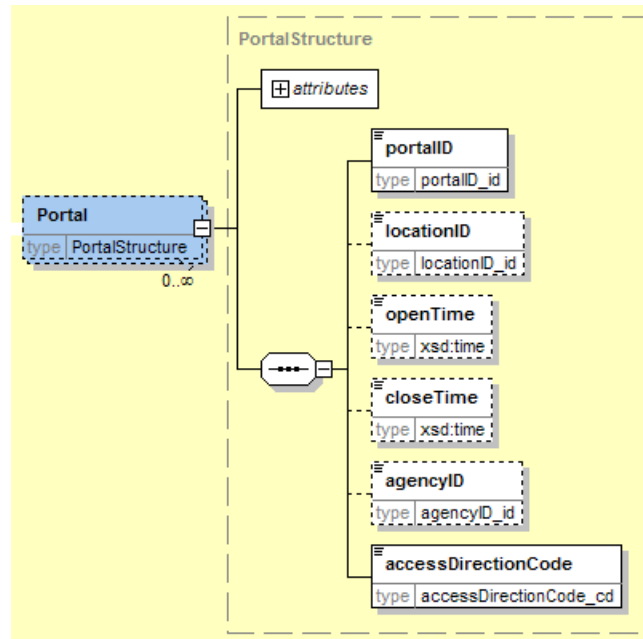


Figure 8-7: SDP XML Schema Fragment for the Portal Element

Transit Stop: SDP XML Schema Fragment

In generating the SDP XML Schema element shown in Figure 8-8 for Transit Stop, from the CDRM's Transit_Stop entity, a number of rules were applied. These include the following:

- stopID should be unique for all stops described by the Agency. There may be special considerations for rail systems that use this data concept to describe a platform. (See Appendix A on Special Considerations for Rail).
- locationID is included as an optional related element so instances of TransitStop may stand as an independent inventory of stops.
- AddressStructure describes the individual elements of the stop address. It is described in Part 3 SDP XML Schema Template.
- adaCompliance, alongLocation and stopType are described as enumerated values.
- length is a floating point type with an attribute that identifies the unit as either feet or meters. Feet is the default value if an attribute is not present.
- heading is in decimal degrees.
- publicStopName and publicStopNumber should be documented for public presentation.
- trackList embeds the track, bay or dock that is associated with the transit stop, platform, or more generally, the boarding area. There may be a many to many relationship among stops (platform) and tracks.
- Attributes, which include effectiveDate and endDate, are intended for data configuration management purposes.

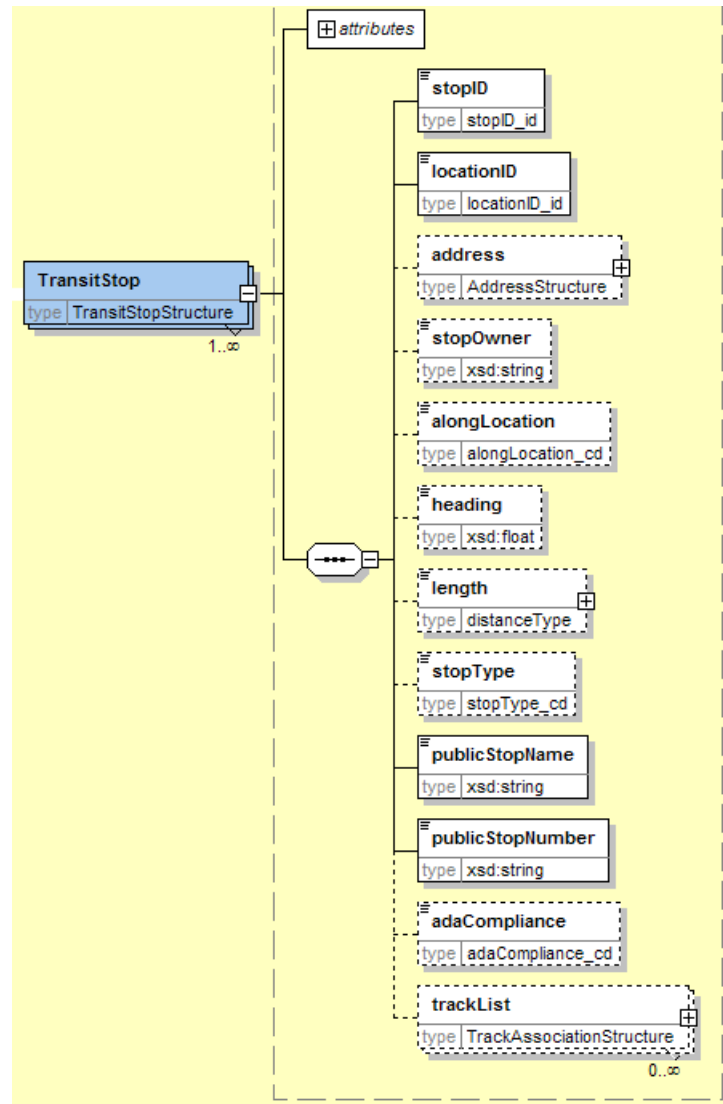


Figure 8-8: SDP XML Schema Fragment for the Transit Stop Element

Passenger Access Component: SDP XML Schema Fragment

In generating the SDP XML Schema element for the Passenger Access Component from the CDRM Passenger_Access_Component entity, as illustrated in Figure 8-9, a number of rules were applied. These include the following:

- passAccessID should be a unique value among all PassengerAccessComponents described by an Agency.
- passengerAccessCode and accessDirectionCode are enumerated type values.
- accessLocationDesc is used to describe the location of the Passenger Access Component, for example, “enter through street doors to veranda with stairs that descend to hallway.”
- accessibilityDesc describes the constraints on mobility, for example, “elevator includes Braille labels.”
- description is an open value and may be used in an open form or as a structured (tagged) list of additional Amenity characteristics.

- Attributes, which included effectiveDate and endDate, were included for data configuration management purposes

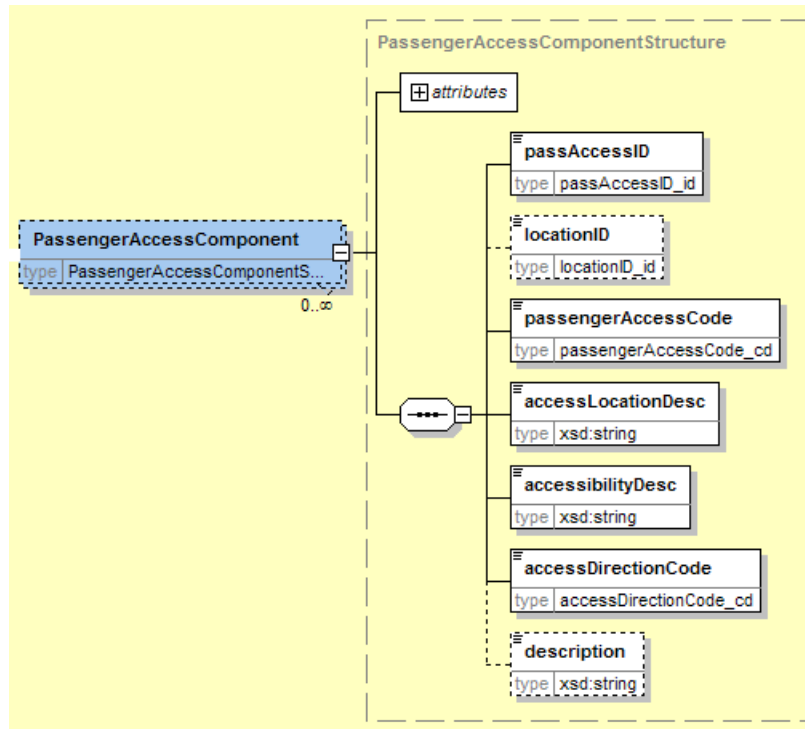


Figure 8-9: SDP XML Schema Fragment for Passenger Access Component Element

Track: SDP XML Schema Fragment

In generating the Track SDP XML Schema element from the CDRM, as illustrated in Figure 8-10, a number of rules were applied. These include the following:

- tranPathID references a Transit Path element if it was developed.
- Attributes, which included effectiveDate and endDate, were included for data configuration management purposes.

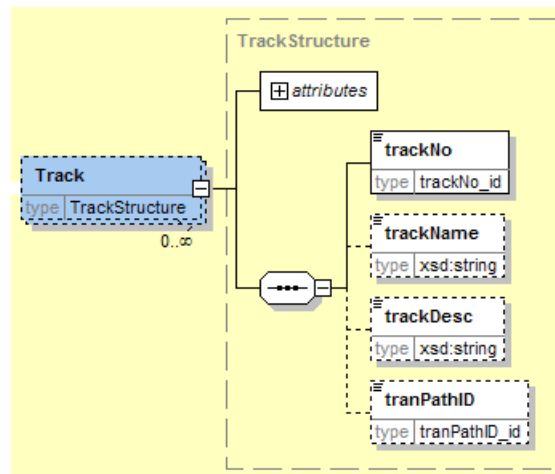


Figure 8-10: SDP XML Schema Fragment for the Track Element

Detailed Data Descriptions and Guidance for Transit Facilities

This section describes the formats and guidance associated with each high level Transit Facilities element in the data concepts described above. The guidance is consolidated into tables that include a list of baseline requirements (M for mandatory and O for optional), the element name, the data type and guidance related to element. The guidance provides clarity to the data definition. The first column of each table designates the baseline requirements based on the SDP XML Schema version 1.0. A downstream application may further restrict these requirements in order for the data set to meet its data needs. The element name corresponds to the related CDRM entities and attributes. The type may refer to a native XML type, or declared type in the XML schema. The Guidance column is called “Questions to Ask/Guidance.” These questions direct the analyst to a similar or equivalent concept in their own schedule data set. In addition, some comments describe the impact of the data structures on the SDP XML Document deployment.

The following tables are included in this section:

- Table 8-3: Transit Facility Guidance
- Table 8-4: Plant Component Guidance
- Table 8-5: Status Guidance
- Table 8-6: Amenity Guidance
- Table 8-7: Portal Guidance
- Table 8- 8: Transit Stop Guidance
- Table 8- 9: Track Association Guidance
- Table 8-10: Passenger Access Component Guidance
- Table 8-11: Track Guidance

Table 8-3: Transit Facility Guidance

Req	Element Name	Type	Questions to Ask/Guidance
M	transitFacilityID	IDENTIFIER UNIQUE	Is there an identifier that may be used for the ID? If Transit Facility is a simple bus stop, you may duplicate stopID in this field.
M	locationID	locationID_id	A reference to the location reference element.
M	facilityName	String	The name of the Transit Facility that is known to the public. Use shared facility name if this is a description of a shared facility.
O	facilityType	facilityType_cd	A type of Transit Facility. Enumerated type. Types include: depot/garage, passenger (for boarding/alighting transit vehicle in revenue service).
O	facilityDescription	String	A description of the Transit Facility. May insert free form text or structured tag list.
O	owner	String	Insert the owner of the Transit Facility.
M	isPartOf	Boolean	Insert TRUE if this Transit Facility is part of a larger Transit Facility such as LIRR Mineola station is part of the Mineola Intermodal Facility. Otherwise, insert a value of FALSE.

Table 8-3: Transit Facility Guidance

Req	Element Name	Type	Questions to Ask/Guidance
O	partOf	transitFacilityID_id	If the Transit Facility is a facility shared by multiple agencies, use the regional shared facility ID. If it is designated as a multi-use/mode facility, but only one organization uses it, then include the transitFacilityID to which this facility is “part of.”
O	plantComponentList	list of Plant Component*	The Plant Components that are contained within or associated with the TransitFacility. The Plant Components may include Transit Stops, Amenities, Portals Passenger Access Components Tracks and other Transit Facilities.
O	effectiveDate	date	[attribute] The effective date of the record.
O	endDate	date	[attribute] The end date of the record.

Table 8-4: Plant Component Guidance

Req	Element Name	Type	Questions to Ask/Guidance
M	plantCompID	IDENTIFIER UNIQUE	A unique index within each Transit Facility that distinguishes Plant Components.
M	componentID	choice of amenityID_id, portalID_id, stopID_id, passAccessID_id, transitFacilityID_id, trackNo_id	Currently there are only six types of Plant Components that may be incorporated into a Transit Facility. See XML Schema for how to document the XML format for this identifier.
M	plantCompType	plantCompType_cd	This field identifies the type of Plant Component. Only one of the six types (listed in componentID) is allowed.
O	locationDescription	string	A description of the location where the Plant Component is located. The value may be used to help passengers navigate within the facility. For example, if the Plant Component is a platform (designated as a TransitStop), then the location description may contain: "The platform is accessed via the second set of stairs from the elevators."
O	plantCompDescription	string	A description of the Plant Component. May insert free form text or structured tag list.
O	status	Status	This structure describes the deployment status of the Plant Component within the facility. See Status Guidance in Table 8-5 below.

Table 8-5: Status Guidance

Req	Element Name	Type	Questions to Ask/Guidance
M	revisionNo	revisionNo_id	This is a different revision number than the schedule revision. It is used to designate the status of the facility Plant Component.
O	activationDate	datetime	The date the Plant Component was activated (placed into service).
O	deactivationDate	datetime	The date the Plant Component was decommissioned, closed, removed or deactivated.
M	creationDate	datetime	The date this record was created.
O	modificationDate	datetime	The last date this record was modified.
M	placementDate	date	The date the Plant Component was planned or placed (not necessarily into service).
M	statusTypeCode	statusTypeCode_cd	The status of the Plant Component. Valid types include: primary, revised, temporary, obsolete, suspended or planned.
O	history	string	The history of the changes to this record.

Table 8-6: Amenity Guidance

Req	Element Name	Type	Questions to Ask/Guidance
M	amenityID	amenityID_id UNIQUE	A unique designator for any type of Amenity that may be found at a Transit Facility (not supported by other elements). The amenity list may be used as a template for Plant Component, to describe types of amenities supported by an Agency. For example, if an Agency has inventory of three types of benches, three templates may be described for the types of benches, and the Plant Component would reference the amenityID and describe the instance of where the bench type was located, as well as its Status.
M	amenityCode	amenityCode_cd	A long list of values exist to describe the specific Amenity. These may be found in the SDP_Domain.xsd schema file or in Part 3 SDP Guidance Template code list page.
O	locationID	locationID_id	This field may be redundant with the Transit Facility location, and thus should only be used for large or separated Amenity types such as parking, etc.
O	description	string	A description of the Amenity. Feel free to partition this description into structured parts.
O	effectiveDate	date	[attribute] The date the record was inserted.
O	endDate	date	[attribute] The date the record was deactivated.

Table 8-7: Portal Guidance

Req	Element Name	Type	Questions to Ask/Guidance
M	portalID	portalID_id UNIQUE	A unique designator for an entrance or exit from a Transit Facility.
O	locationID	locationID_id	This field may be redundant with the Transit Facility location. For large facilities like Fulton Station or Penn Station, this locationID may point to a specific street corner where the Portal is located.
O	openTime	time	This is the time the entrance is unlocked and may be accessed by the public.
O	closeTime	time	This is the time the entrance/exit is locked and is not accessible by the public.
O	agencyID	string	This is the agency that is responsible for the Portal. The assumption is that this is not the agency submitting the SDP Document. The registration agency identifier should be used for this field.
M	accessDirectionCode	accessDirectionCode_cd	The direction access of the Portal. 0= both in and out; 1= enter only; 2= exit only; 3=other.
O	effectiveDate	date	[attribute] The date the record was inserted.
O	endDate	date	[attribute] The date the record was deactivated.

Table 8-8: Transit Stop Guidance

Req	Element Name	Type	Questions to Ask/Guidance
M	stopID	stopID_id UNIQUE	A unique Transit Stop identifier for the system. In the case of rail, a generic Platform A, B, etc. may be used to designate the Transit Stop.
O	locationID	locationID_id	This field is required for bus stops except where a Transit Stop is associated with a Facility. Then the stop may inherit its location from the Facility.
O	address	ADDRESS	A complete address as described by the AddressStructure.
O	stopOwner	string	The owner of the Transit Stop. Typically, this may refer to the owner of the post that holds the marker, or it may refer to the surface where boarding and alighting occur, e.g., city.
O	alongLocation	alongLocation_cd	The location along a boarding area where passengers board or alight the transit vehicle. Code values include: left, right or both.
O	heading	float	The direction the transit vehicle (e.g., bus) is facing when it is boarding/alighting passengers at a Transit Stop. This field is important for real time systems. The units are in decimal degrees.
O	length	distanceType_cd	The length of the Transit Stop. This field includes an optional attribute that designates unit type. The assumed unit type is feet.

Table 8-8: Transit Stop Guidance

Req	Element Name	Type	Questions to Ask/Guidance
M	stopType	stopType_cd	The type of Transit Stop typically based on the mode of service provided. See enumeration types in the Part 3 SDP Guidance Template code list.
M	publicStopName	string	The Transit Stop name that is known to the public. The field should be populated so that it may be shown to the public as-is.
M	publicStopNumber	string	The Transit Stop number that is known to the public. This may be an index that is used to in a 511-interactive voice response telephone system.
O	adaCompliance	adaCompliance_cd	Describe the characteristics of the Transit Stop with respect to services related to specific mobility, visual and auditory challenges. Values include: <ul style="list-style-type: none"> ▪ notCompliance, ▪ fullyCompliant, ▪ mobilityChallengedAccess, ▪ visuallyImpairedAccess, ▪ hearingImpairedAccess, ▪ mobility-VisuallyImpairedAccess, and ▪ visually-HearingImpairedAccess, and ▪ mobility-HearingImpairedAccess.
O	trackList	list of TrackAssociation	This field is specifically for rail operators. It contains one or two references to track numbers that are associated with a platform.
O	effectiveDate	date	[attribute] The date the record was inserted.
O	endDate	date	[attribute] The date the record was deactivated.

Table 8-9: Track Association Guidance

Req	Element Name	Type	Questions to Ask/Guidance
M	trackNo	trackNo_id	The Track number that is associated with a Platform (from TransitStop.trackList).
M	alongLocation	alongLocation_cd	The side by which passengers board the train, e.g, the right side of the train or the left side of the train.

Table 8-10: Passenger Access Component Guidance

Req	Element Name	Type	Questions to Ask/Guidance
M	passAccessID	passAccessID_id UNIQUE	A unique index that designates the accessibility of a conveyance in a Transit Facility. This element describes elevators, escalators, stairs, etc.
O	locationID	locationID_id	This field may be redundant with the Transit Facility location, and thus should only be used when separated from the facility, e.g., subway station portals.
M	passengerAccessCode	passengerAccessCode_cd	The type of obstacle that might be encountered in a Transit Facility such as: stairs, elevator, escalator, etc.

Table 8-10: Passenger Access Component Guidance

Req	Element Name	Type	Questions to Ask/Guidance
M	accessLocationDesc	string	A description of the access type, for example: "escalator in GCT from Mezzanine to Lobby floor."
M	accessiblityDesc	string	General description information of the Passenger Access Component. This may be a free form text or structure/tagged list.
M	accessDirection	accessDirectionCode_cd	The direction provided by the Passenger Access Component. The direction is based on the type of device. Moving walkways may move in an "inbound" and "outbound" direction, for example.
O	description	string	Additional description information of the Passenger Access Component. This may be a free form text or structure/tagged list.
O	effectiveDate	date	[attribute] The date the record was inserted.
O	endDate	date	[attribute] The date the record was deactivated.

Table 8-11: Track Guidance

Req	Element Name	Type	Questions to Ask/Guidance
M	trackNo	trackNo_id UNIQUE	The inventory of tracks near or at transit facilities.
O	trackName	string	The Track name if it has one.
O	trackDesc	string	A Track description.
O	tranPathID	transPathID_id	If a modal path (that is TransitPath in TransitNetwork) is defined for this Track, the reference to the TransitPath.
O	effectiveDate	date	[attribute] The date the record was inserted.
O	endDate	date	[attribute] The date the record was deactivated.

Usage and Examples of Transit Facilities

Since the transit operators in the New York region have many different configurations of transit stops and facilities, a range of examples are included on how to represent them in a SDP XML Document. The examples describe how transit facilities of varying levels of complexity may be represented using the SDP XML Schema. The description of each example is listed in Table 8-12. Each example includes one or more approaches for representing the Transit Facility. References to the Appendices in which the examples may be found are included in the last column of Table 8-12.

Table 8-12: Examples of Transit Facilities

Case	Description	Example	Comments	Appendix Reference (See Appendix E for Section #s)
1	Single transit stop on street	Location and Transit Stop entities only (Westchester Bee-Line StopID 39)	Single route	See NYSDOT_WP_TransitFacility Examples 1-6_8_v1.0.zip NYSDOT_WP_Transit-Stop Example 1-2 Bee-line.doc
2	Single transit stop on the street with amenities	Location and Transit Stop defined as a Transit Facility with amenities and Passenger Access Components (Westchester Bee-Line StopID 39)	Single route with amenities	See NYSDOT_WP_TransitFacility Examples 1-6_8_v1.0.zip NYSDOT_WP_Transit-Stop Example 1-2 Bee-line.doc
2	Single transit stop off street	SCT @ Walt Whitman Mall	Multiple routes	See NYSDOT_WP_TransitFacility Examples 1-6_8_v1.0.zip NYSDOT_WP_Transit-Stop Example 2 WWM_110106.doc
3	Single ferry berth	Haverstraw Ferry-- Ossining Ferry	MNR	See NYSDOT_WP_TransitFacility Examples 1-6_8_v1.0.zip NYSDOT_WP_TransitStop Example 3 Haverstraw(110206).doc
4	Multiple stops (routes) at a single mode transit center/facility (not subway)	Mineola	LIB	See NYSDOT_WP_TransitFacility Examples 1-6_8_v1.0.zip NYSDOT_WP_Transit-Stop Example 4-6 Mineola_103106.doc
5	Subway station with multiple entrances/exits (single platform/multiple tracks)	96 th (123) as simple case Fulton/Nassau as complex case	---	none
6	Rail Station: platform(s) and bus stop(s)	Mineola	LIRR & LIB	See NYSDOT_WP_TransitFacility Examples 1-6_8_v1.0.zip NYSDOT_WP_Transit-Stop Example 4-6 Mineola_103106.doc
7	Complex Transit Facility (multiple routes, modes and operators) – identify only facility	Penn Station with three smaller facilities	Overview, details in Cases 9-11	See NYSDOT_WP_TransitFacility Examples 1-6_8_v1.0.zip NYSDOT_WP_Transit-Stop Example 7 Penn.doc

Table 8-12: Examples of Transit Facilities

Case	Description	Example	Comments	Appendix Reference (See Appendix E for Section #s)
8	Station with platforms on both sides of a track where passengers may enter on either side	Jamaica Station	LIRR	See NYSDOT_WP_TransitFacility Examples 1-6_8_v1.0.zip NYSDOT_WP_Transit-Stop Example 8 Jamaica_v0.1a.doc
9	Transit platform in transit center	Platforms A-C/tracks 1-5 at Jamaica Station	Jamaica Station	See NYSDOT_WP_TransitFacility Examples 1-6_8_v1.0.zip NYSDOT_WP_Transit-Stop Example 9_v0.1a.doc
10	Transit Stop on street at Transit Center/Facility	Penn Station M16	New York Bus	Similar to example 4
11	Transit Platform in Station with two tracks on either side of the platform	LIRR @ Penn Station		Similar to examples 8 and 9