AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT	1. Contract Number	Page of Pages 1 / 235

2. Amendment/Modification Number	3. Effective Date	4. Requisition/Purchase Request No.	5. Solicitation Caption
DCTO-2010-R-0052-A02	4/5/2010		ArcGIS Maintenance Tool Upgrade

6. Issued By: Code	7. Administered By (If other than line 6)
Office of Conracting and Procurement Information Technology Group 441 4th Street NW, Suite 700S Washington, DC 20001	

8. Name and Address of Contractor (No. Street, city, country, state and ZIP Code)		
	(X)	9A. Amendment of Solicitation No. DCTO-2010-R-0052
		9B. Dated (See Item 11) 17-Mar-10
		10A. Modification of Contract/Order No.
Code / Facility		10B. Dated (See Item 13)

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers [X] is extended. [ ] is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning 1 copies of the amendment: (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or fax which includes a reference to the solicitation and amendment number. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or fax, provided each letter or telegram makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. Accounting and Appropriation Data (If Required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14

	A. This change order is issued pursuant to: (Specify Authority) The changes set forth in Item 14 are made in the contract/order no. in item 10A.
	B. The above numbered contract/order is modified to reflect the administrative changes (such as changes in paying office, appropriation date, etc.) set forth in item 14, pursuant to the authority of 27 DCMR, Chapter 36, Section 3601.2.
	C. This supplemental agreement is entered into pursuant to authority of:
	D. Other (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [X] is required to sign this document and return 1 copies to the issuing office.

14. Description of amendment/modification (Organized by UCF Section headings, including solicitation/contract subject matter where feasible.)

Under C.1.1 Applicable Documents are hereby attached and made a part of the RFP.

THE DATE AND TIME FOR RECEIVING PROPOSALS IS CHANGED FROM: APRIL 7, 2010, 2:00 P.M. TO: APRIL 12, 2010, 2:00 P.M.

Except as provided herein, all terms and conditions of the document referenced in Item (9A or 10A) remain unchanged and in full force and effect

15A. Name and Title of Signer (Type or print)		16A. Name of Contracting Officer John P. Varghese	
15B. Name of Contractor (Signature of person authorized to sign)	15C. Date Signed	16B. District of Columbia (Signature of Contracting Officer)	16C. Date Signed 4-5-10

Data Loading Summary For DDOT Street Spatial Database Development

Revision History

Name	Date	Reason For Changes	Version
SSD Data Loading Summary Draft	3/20/04	.	Draft
SSD Data Loading Summary Draft	5/28/2004	To incorporate changes from meeting on Wednesday 5.24.2004	
SSD Data Loading Summary Draft	6/8/2004	To incorporate changes from meeting on Tuesday 6.8.2004	
SSD Data Loading Summary Draft	6/15/2004	To incorporate changes from meeting on Tuesday 6.15.2004	
SSD Data Loading Summary Document	11/17/2004		Final

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1 INTRODUCTION

1.1 Overview

The DDOT Street Spatial Database Project involves the development of a spatial database from a high level data model designed by the Spatial Data Systems Division. The model, based on ESRI's UNETRANS data model, comprises 4 different tiers covering the street roadway network and assets and has the roadway segment and the intersection point as its basic geometry elements.

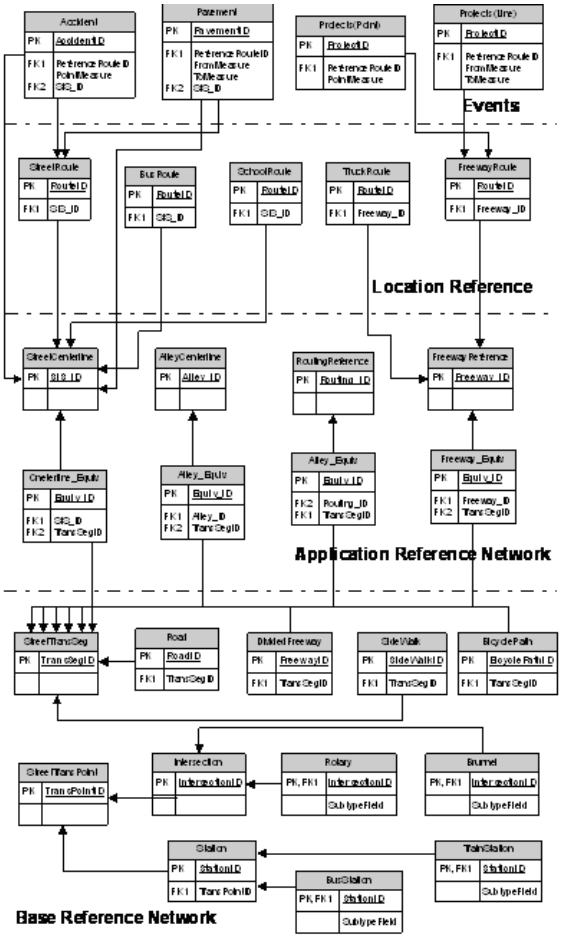

Figure 1: High Level Architecture for DDOT Street Spatial Database Model

As shown in Figure 1 above, the 4 tiers are:

- Base Reference
- Application Reference Network
- LRS Reference
- LRS Events

The entire Street Spatial Database Project comprises five phases, which are:

- High Level Design (Conceptual Design)
- Prototype Testing
- Detailed Design
- System testing and Data migrating
- System implementation

The high level design phase of the project was carried out by DDOT's Spatial Data Systems Division. During this phase of the project , all the major components and their relationships within the database system were determined by identifying major data elements for constructing street networks, defining key fields for linking the street network with other applications and data elements, and generating an Entity-Relation diagram to model the major data entities and relations for the street spatial database.

Until recently, the usage scenarios for the street spatial database system had been largely theorized but not tested. Thus, the Prototype testing phase was carried out to test the validity of the database's conceptual design, the feasibility of the high level design, and whether any modifications were necessary to enable the system meet the everyday operational demands of the DDOT.

In addition to reviewing the results of the prototype testing, the detailed design phase involved extending the high-level design to link to essential data elements from existing Street Inventory System (SIS) and other business data systems through the creation of reference keys.

During the System Testing and Data migrating phase, existing street GIS data was loaded into the Street Spatial schema.

The implementation phase is envisioned to be continuous data maintenance and support exercise. Once complete, the model will support the department's operational demands for street maintenance, routing and navigation. In time, it is expected that the system will support more usage scenarios.

This document summarizes the methodology used to by Geo-Imaging Consulting to carry out the following components of the Prototype testing phase of the Street Spatial Database (SSD) Development project:

- Loading Test Data
- Creation of Geodatabase Topology
- Creation of Relationship Classes and Rules

1.2 Database Format

The database format of choice for the DDOT Street Spatial Database project was an ArcSDE (Oracle 9i) Geodatabase, initially hosted on a Geo Imaging server. Being a domain based network, the ArcSDE port on the server remained open to connections from ArcGIS clients (at DDOT and GeoDecisions) at agreed times.

1.3 Data Preparation

Through a combination of ArcGIS tools, ArcObjects scripts and SQL database queries, the test data provided by DDOT was manipulated to create feature and object classes that served as source layers for populating the SSD Geodatabase. The methodology undertaken is further discussed later in this document.

1.4 Domains

Comment [T1]: We can remove ramptype and add the values for ownership from the schema

To enforce database integrity, the coded value domains outlined in Table 1 were set for the SSD Geodatabase:

Domain	Coded Values
AccessControl	NoAccessControl = 0 HasAccessControl = 1
Control Type	Controlled = 1 AllWayStop = 2 TwoWayStop = 3 UnControlled = 4
Directionality	One way (digitizing direction) = 0 One-way (against digitizing direction =0 Two way = 2 Unknown = 3
NodeType	End Node = 0 Boundary Node = 1 Pseudo Node = 2 Intersection = 3
Ownership	Unknown = 0 DDOT = 1 National Park Service = 2 Architect of the Capitol = 3 Military Reservation = 4 Private = 5 WMATA-METRO = 6 Other DC Agencies = 7 Other Federal Agencies =8
QuadCode	NW = 1 NE = 2 SE = 3 SW= 4 Boundary = 5

Domain	Coded Values
StatusCode	Active = 1 Retired = 2 Paper = 3 Derived = 4 Open = 5 Close = 6 On Hold = 7 Changed = 8 New = 9 Old = 10 Deleted = 11 Completed = 12 Budgeted = 13 Under Construction = 14 Planned = 15 Under Design = 16

Table 1: Coded Value Domains

2 DATA LOADING

For the most part, once a source data layer was created from the DDOT test data, ArcCatalog's Simple Data Loader was used to load it into the database. By the end of this particular phase of the project, no instances necessitating the use of other data loading methods, e.g. the Oracle SQL Loader or ArcObjects scripts arose.

2.1 Base Reference Features

2.1.1 Feature Class: RoadwaySegment

The RoadwaySegment feature class was created by merging the street, service roads, ramps, alleys and driveway road types using ArcObjects code. The advantage of automating the process lies in the reusability of the code.

For the model to meet usage expectations, it was important that the true segmentation of the streets be preserved just as it is in the DDOT source data where overpass and underpass grade separations are maintained. During the merging process therefore, planar enforcement was not applied.

The first step in the data preparation was to identify the sourceIDs of all features. All test data supplied by DC DOT (with the exception of the drive segments) had existing SourceID values. A custom SourceID for the Driveway road type was created by Geo-Imaging Consulting.

Alleys, driveways, ramps and service roads, were then programmatically merged to create an intermediate linear feature class.

Splitter nodes (which were later discarded) were then created from the intermediate linear merge, after which the street segments were added to it. Finally, the splitter nodes were used to split the final linear merge at the correct intersection points. The composite feature class thus created had the desired segmentation for the RoadwaySegment feature class in the Base Reference Layer. The corresponding field values (see Table 2) of the composite layer were then loaded into the SSD's RoadwaySegment feature class using ArcCatalog's Simple Data Loader.

Attribute	Source / Description	Loading Status	Example
StreetTransSegID	A unique identifier (sequence) generated by an Oracle database trigger. New IDs are automatically created when a row is inserted into the RoadwaySegment business table.	Populated	
SourceID	ID of the source linear feature class from the test data. Useful for tracing the lineage of the feature classes. • SIS_ID from StreetCenterlines • NEW_SERVC_ID from ServiceRoads • RAMP_ID from Ramps • ALLEY_ID from Alleys • Customized ID created by concatenating Object ID with '1000'	Populated	
InServiceDate	Date when asset (RoadwaySegment) was commissioned into service - Data not available for prototype testing	TBD.	
OutOfServiceDate	Date when asset (RoadwaySegment) was taken out of service – Data not available for prototype testing	TBD	
UpdateTimeStamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update.	Populated	
LifeCycleStatus	Domain based (Status code). To be set to "active" for all features	Populated	
SegmentLength	(ShapeLength in the GDB) automatically generated.	Populated	
Description	Textual description of Segment		
FromNodeID	NodeID of the **node at the beginning** of the each roadway segment (see Node feature class)	Populated	
ToNodeID	NodeID of the **node at the end** of each roadway segment (see Node feature class)	Populated	
Ownership	Describes entity responsible for maintenance of the roadway asset. The coded value domain values are to be advised	TBA	
QuadCode	City quadrant in which segment exists. (Also a coded value domain)	Populated	
StreetID	Identifies the street IDs for street subtypes. Created by concatenating segment QuadCode and the 5-character StreetCode	Populated	
Directionality	Based on coded value domain. Determines if the segment is: • One way (digitizing direction) • One way (opposite digitizing direction) • Two way or unknown	Populated	
AddressRangeID	Identifier for the street block on which the segment falls.	TBA	
RampName	Name of the source ramp. Only applicable segments of RoadType 3.	TBA	
FromSegID*	ID of segment linked to ramp beginning	Populated	
ToSegID*	ID of segment linked to ramp end	Populated	
ExitNo		TBA	
RampID	Created by DDOT	Populated	
RoadType <<subtype>>	There are 5 roadway subtypes: 1 – Street 2 – ServiceRoad 3 – Ramp 4 – Alley 5 – Driveway	Populated	

Table 2: RoadwaySegment Feature Class

*Created using ArcObjects code and refers to Ramps and the Segments that they connect

2.1.2 Feature Class: Node

The node feature class, composed of 3 different types (See 2.1.2.1 below) was created from the final composite feature class (Roadway Segment). During its creation (using ArcObjects code), the number of edges (links) connected to each node was also noted.

2.1.2.1 Typing the nodes

The nodes were then classified into 4 types as listed below:

Type 0: *End nodes*: Touch only 1 link

Type 1: *Boundary nodes*: Fall on the DC boundary.

Type 2: *Pseudonodes*: As a general rule, any node touching only two segments is considered a Pseudonode. In this case however, a node touching *two segments of different road types or bearing different names* is considered an intersection and therefore of type 3.

Type 3: *Intersections:* Nodes touching more than 2 segments or touching only 2 segments of different road types and / or bearing different names.

The attributes of the node feature class are described in Table 3.

Attribute	Source / Description	Status	Example
StreetTransPointID	Sequence generated from a Before insert trigger on the node table.	Populated	
SourceID	IDs of the original data sources :	Populated	
InServiceDate	Date when asset (Node) was commissioned into service – Data not available for prototype testing	TBD	
OutOfServiceDate	Date when asset (Node) was taken out of service – Data not available for prototype testing	TBD	
UpdateTimestamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	
LifeCycleStatus	Domain based (Status code). To be set to “active” for all features	Populated	
Description	Textual description of the node	Populated	
SymbolRotation			
NodeID	Unique identifier for the node feature, creation of this is done in ArcObjects	Populated	
X_Coord	X (horizontal) value of feature location		
Y_Coord	Y (vertical) value of feature location		
NodeType	As described above	Populated	

Table 3: Node Feature Class

2.1.3 Feature Class: Roadway Junction

The intersection feature class comprises those nodes that were typed as intersections following the rules outlined in section 2.1.2.1 above.

2.1.3.1 Data Creation Approach

Base Layer nodes of type 3 were extracted to form the base intersection feature class. The extraction can be accomplished through a database query or ArcObjects code.

Attribute	Source / Description	Status	Example
StreetTransPointID	Sequence generated from a Before insert on the Roadway Junction table.	Populated	
SourceID	ID of the node from which the Roadway Junction feature class was extracted	Populated	
InServiceDate	Date when asset (Roadway Junction) was commissioned into service – Data unavailable for prototype testing	TBD	
OutOfServiceDate	Date when asset (Roadway Junction) was taken out of service – Data unavailable for prototype testing	TBD	
UpdateTimestamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	6/9/2004 6:30:07 PM
LifeCycleStatus	Domain based (Status code). To be set as "active" for all features	Populated	
Description	Textual description of the Roadway Junction point		
SymbolRotation			
IntersectionID	UniqueID created during extraction of nodes.	Populated	1
NodeID	ID of the node from which the Roadway Junction feature class was extracted	Populated	121
NumberOfLink	Captures the number of segments linked to each point feature.		3
ControlType (Domain)	There are 4 control types for an intersection – These are: ControlType 1 – Controlled ControlType 2 – AllWayStop ControlType 3 – TwoWayStop ControlType 4 – UnControlled	Populated with default value (4)	4
IntersectionType <<SubtypeField>>	The 5 Base Reference Network Intersection Types are as follows: Type 1 – StreetIntersection Type 2 – ServiceRoadIntersection Type 3 – RampIntersection Type 4 – AlleyIntersection Type 5 – DriveIntersection	Populated with default value (1)	1

Table 4: Roadway Junction Feature Class

2.1.4 Object Class: BaseBlockFaceAddRange

(No data loaded)

Attribute	Source / Description	Status	Example
BlockFaceID			
Side			
StreetID			
FromAddress			
ToAddress			
ZipCode			

Table 5: BaseBlockFaceAddRange Object Class

2.1.5 Object Class: BaseAddressRange

(No data loaded)

Attribute	Source / Description	Status	Example
AddressRangeID			
StreetID			
RegisteredName			
StreetType			
Quadrant			
FromLeftAddress			
ToLeftAddress			
LeftZipCode			
FromRightAddress			
ToRightAddress			
RightZipCode			
StreetTransSegID			
FromLeftTheoreticRange			
ToLeftTheoreticRange			
FromRightTheoreticRange			
ToRightTheoreticRange			

Table 6: BaseAddressRange Object Class

2.2 Equivalent Tables

The SSD model was designed to accommodate edits at the base reference level of the 4-tier system. These edits are passed on to other levels through topology, database triggers and custom code. A critical aspect of the synchronization of the edits and updates is achieved through the equivalent tables.

In addition to feature classes, the prototype database held two types of equivalent tables, namely:

Horizontal equivalent tables - representing the relationship between nodes and links in the same layer of the model structure. (Figures 2 and 3)

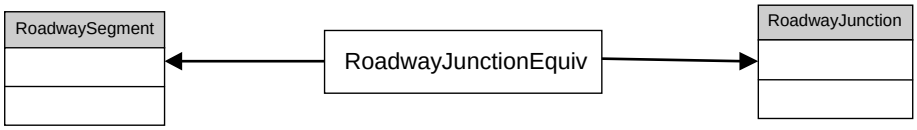

Figure 2: Horizontal Relationship at the Base Reference Level

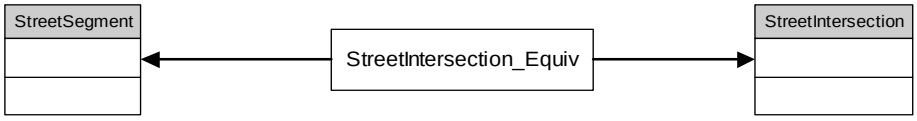

Figure 3: Horizontal Relationship at the Application Reference Level

Vertical equivalent tables - representing the relationship between features of the same geometry in different layers of the model structure (Figure 4)

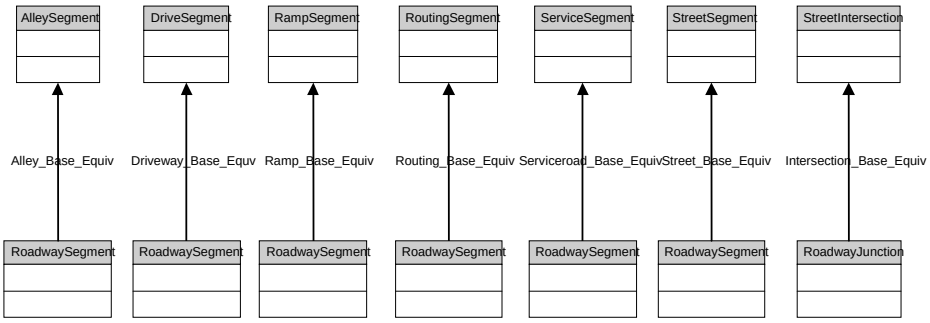

Figure 4: Vertical Relationships

The creation of the horizontal equivalent tables at each layer of the model was an intricate process that was automated through ArcObjects code. The vertical equivalent

tables were easily created as long as the original SourceID of the feature had been noted and tracked before the creation of the base reference network. A simple join on the SourceID field and some creativity yielded the attributes of the vertical equivalents representing the relationship between the RoadwaySegment and other linear features in the application and linear reference layers

2.2.1 Object Class: RoadwayJunction_Equiv

The RoadwayJunction_Equiv table represents the horizontal relationship between base reference layer segments and nodes. Since the geometric network is not used in this model, this table facilitates the tracking of 'network' edge-junction connectivity.

2.2.1.1 Data Preparation and Loading Strategy

Using ArcObjects code, edge-node connectivity was established by looping through each intersection in the network and identifying touching edges by their StreetID or SourceID values along with their measure. If a segment FromNode is coincident with the intersection, then the measure value is 0 and the segment is leaving the intersection. Otherwise, if the segment ToNode is coincident with the intersection then the measure is the segment length and the segment is approaching the intersection.

Other attributes tracked at each iteration included NodeID, IntersectionType, StreetTranSegID, StreetSegID, IntersectTransSegID, IntersectionID, IntersectionPointID, IntersectSegMeasure, RoadType, ControlType, NumberOfLink, and IsPrimary

The primary segment at each intersection (for which the value of IsPrimary is 1) is the segment leaving the intersection with the lowest StreetID or SourceID value. For centerline intersections this rule is overridden if the first character of any of the segments is 5 (i.e. the segment lies in Quadrant 5). This becomes the primary segment regardless of whether it is approaching or leaving the intersection. If there are two segments linked to an intersection with 5 as the first character of their StreetID, the lower value streetID becomes the primary

The result of this tracking is a table that can be queried to populate most of the equivalent tables in the schema. The description of RoadwayJunction_Equiv is shown in Table 7

Attribute	Source / Description	Status	Example
EquivID	Sequence generated by an Oracle database trigger	Populated	
NodeID	NodeID of the intersection for which the connecting links are recorded.	Populated	
IntersectSegMeasure	Segment length at intersection (0 for leaving segment and a geometric length for approaching segment)	Populated	
IntersectTransSegID	StreetTransSegID of the segment at the node	Populated	
IsPrimary*	Takes on a value of 1 if the segment is the primary and 0 if it is not. Determined as follows: 1. For centerline intersections, the convention for determining the IsPrimary attribute is discussed later. 2. For non-centerline intersections, the value of the attribute IntersectionType in the table discussed above must not be 1. 3. The IntersectSegmentMeasure of the segment at an intersection must be 0 (The segment should be leaving the intersection) 4. If there is more than one segment leaving that intersection (IntersectSegMeasure=0) the segment with the lower value SourceID is the primary 5. If no segment is leaving the intersection then the segment with the lower value SourceID	Populated	

Table 7: RoadwayJunction_Equiv Object Class

2.2.2 Object Class: StreetIntersection_Equiv

The StreetIntersection_Equiv represents the horizontal relationship between centerline intersections and street segments at the application layer.

Segment-node connectivity was established by looping through each node in the network to determine its touching edges by tracking StreetID or SourceID values along with the measure values. If a segment FromNode is coincident with a node, the measure is 0 and the segment is therefore leaving an intersection. Otherwise, coincidence of a node and a segment ToNode means that segment is approaching the intersection and its measure value is its geometric length.

The primary segment at each intersection (for which the value of IsPrimary is 1) is the segment leaving the intersection whose StreetID or SourceID is lowest in value. For centerline intersections this rule is overridden if the first character of any of the segments is 5. This becomes the primary segment regardless of whether it is approaching or leaving the intersection. If there are two segments with 5 as the first character of their StreetID linked to an intersection, the lower value StreetID becomes the primary.

Attribute	Source / Description	Loading Status	Example
Equiv_ID	Sequence generated by an Oracle database trigger	Populated	
IntersectionPointID	ID of the Intersection on the application layer. Originally Sequence generated by an Oracle database trigger	Populated	
IntersectStreetID	StreetID of the Segment linked to the Intersection	Populated	
IntersectStreet_Measure	Measure of the Intersecting segment – 0 for segments leaving the intersection and a value for segments approaching the intersection	Populated	
IsPrimary	1 - If this the segment with lowest value streetID leaving the intersection or if streetID begins with '5' 0 — Otherwise	Populated	

Table 8:StreetIntersection_Equiv Object Class

2.2.3 Object Class :Intersection_Base_Equiv

The Intersection_Base_Equiv represents the vertical relationship between Centerline Intersections on the application reference layer and Intersections on the base reference layer, which represent the same point (geographically).

Attribute	Source / Description	Loading Status	Example
EquivID	Sequence generated by an Oracle database trigger	Populated	
IntersectionPointID	Sequence originally generated by an Oracle database trigger to serve as surrogate key identifier of the street intersection.	Populated	
IntersectionID	Sequence generated by an Oracle database trigger to serve as unique identifier for the base intersections.	Populated	

Table 9: Intersection_Base_Equiv Object Class

2.2.4 Object Class: Street_Base_Equiv

The Street_Base_Equiv represents the vertical relationship between StreetSegment on the application reference layer and RoadwaySegment on the base reference layer. They both represent the same features (geographically).

Attribute	Source / Description	Loading Status	Example
EquivID	Sequence generated by an Oracle database trigger	Populated	
StreetSegID	Originally, a sequence generated by an Oracle database trigger to serve as surrogate key street segment identifier.	Populated	
StreetTransSegID	Originally, a sequence generated by an Oracle database trigger to serve as surrogate key roadway segments identifier.	Populated	
Status			
UpdateTimeStamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	

Table 10:Street_Base_Equiv Object Class

2.2.5 Object Class: Alley_Base_Equiv

The Alley_Base_Equiv represents the vertical relationship between an alley segment and the corresponding segmentin the base reference layer.

Attribute	Source / Description	Loading Status	Example
EquivID	Sequence generated by an Oracle database trigger.	Populated	
AlleySegID	Application layer alley segment ID Also a sequence generated by an Oracle database trigger.	Populated	
StreetTransSegID	ID of the corresponding segment in the base reference layer	Populated	
Status			
UpdateTimeStamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	

Table 11: Alley_Base_Equiv Object Class

2.2.6 Object Class: Driveway_Base_Equiv

The Driveway_Base_Equiv represents the vertical relationship between a driveway segment and the corresponding segment in the base reference layer.

Attribute	Source / Description	Loading Status	Example
EquivID	Sequence generated by an Oracle database trigger	Populated	
DrivewaySegID	Application layer driveway segment ID	Populated	
StreetTransSegID	ID of corresponding segment in base layer	Populated	
Status			
UpdateTimestamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	

Table 12: Driveway_Base_Equiv Object Class

2.2.7 Object Class: Ramp_Base_Equiv

The Ramp_Base_Equiv represents the vertical relationship between a ramp segment and the corresponding segment in the base reference layer.

Attribute	Source / Description	Loading Status	Example
EquivID	Sequence generated by an Oracle database trigger	Populated	
RampSegID	ID of Ramp segment	Populated	
StreetTransSegID	ID of corresponding segment in the base reference layer	Populated	
Status			
UpdateTimestamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	

Table 13:Ramp_Base_Equiv Object Class

2.2.8 Object Class: Routing_Base_Equiv

The Routing_Base_Equiv represents the vertical relationship between a routing segment and the corresponding segment in the base reference layer.

Attribute	Source / Description	Loading Status	Example
EquivID	Sequence generated by an Oracle database trigger	Populated	
RoutingSegID	ID of Routingsegment	Populated	
StreetTransSegID	ID of corresponding segment in the base reference layer	Populated	
Status			
UpdateTimestamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	

Table 14: Routing_Base_Equiv Object Class

2.2.9 Object Class: ServiceRoad_Base_Equiv

The ServiceRoad_Base_Equiv represents the vertical relationship between a service road segment and the corresponding segment in the base reference layer

Attribute	Source / Description	Loading Status	Example
EquivID	Sequence generated by an Oracle database trigger	Populated	
ServiceRoadSegID	ID of service road segment. Also a sequence generated by an Oracle database trigger	Populated	
StreetTransSegID	ID of the corresponding segment in the base reference layer	Populated	
Status			
UpdateTimeStamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	

Table 15: ServiceRoad_Base_Equiv Object Class

2.2.10 Object Class: SnowRoute_Base_Equiv

The SnowRoute_Base_Equiv represents the vertical relationship between a SnowPlowRoute segment and the corresponding segment in the base reference layer.

Attribute	Source / Description	Loading Status	Example
EquivID	Sequence generated by an Oracle database trigger	Populated	
SnowRouteSegID	ID of snow plow route segment	Populated	
StreetTransSegID	ID of corresponding segment in the base reference layer	Populated	
Status			
UpdateTimestamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	

Table 16:SnowRoute_Base_Equiv Object Class

2.2.11 Object Class: BaseAddRangeEquiv

(No data loaded)

Attribute	Source / Description	Status	Example
EquivID	Sequence generated by Oracle Database Trigger	Unpopulated	
AddressRangeID		Unpopulated	
BlockFaceID		Unpopulated	
Side		Unpopulated	
UpdateTimeStamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Unpopulated	
Status		Unpopulated	

Table 17:BaseAddRangeEquiv Object Class

2.3 LRS Reference Features

2.3.1 Feature Class: StreetRoute

This feature class will support the location of point or line event s along street routes. Each street route comprises all segments along the length of the street. This feature class was created in ArcToolBox as follows:

* Spatial gaps were ignored
* SIS_ID was used as the unique Route Identifier Field
* The From_Measure Field had a default value of 0
*.The ShapeLength field was used as the To_Measure Field

Attribute	Source / Description	Status	Example
RouteID	Sequence generated by an Oracle database trigger	Populated	
StreetID	Concatenation of QuadCode and 5 character StreetCode	Populated	
StreetName	Street Name	Populated	
LRMType			
LRMUnit			
MeasureLength		Populated	
FromMeasure		Populated	
ToMeasure		Populated	

Table 18: StreetRoute Feature Class

2.4 Application Reference Layer

2.4.1 Feature Class: StreetSegment

Representing the street centerlines, this feature class is one of the most important roadway assets to the DC DOT in terms of administration and maintenance.

Although data preparation for this feature class was fairly straightforward, attention had to be paid to the creation of the: FromNodeID, ToNodeID, directionality and SSD_ID attributes as these were not in the test source data.

Through ArcObjects code, the FromNode and ToNode columns were populated with the NodeID values of base reference nodes that were coincident with the street segment endpoints.

To extract DCCL directionality, the test data table was then joined (left join) with the DCCL table using the SIS_ID field. Finally, the SSD directionality was created by substituting the values shown in Table 19 below:

Description	DDOT_DIR (DCCL)	Directionality (SSD)
One way (digitizing direction)	1	0
One way (opposite digitizing direction)	-1	1
Two way	2	2
Unknown	0	3

Table 19: SSD Directionality

Finally, the SSD_ID (see Appendix B) was created using the field calculator in ArcMap.

Data loading was done using the simple data loader in ArcCatalog and the target fields (as shown in Table 20) were loaded with data from the corresponding fields of the staging feature class.

Attribute	Source / Description	Loading Status	Example
StreetSegID	Sequence generated by an Oracle database trigger.	Populated	
SSD_ID	19 character concatenation of the following: QuadCode (1) + StCode (5) + FromNode (5) + ToNode (5) + *RoadType (2) + Directionality (1)	Populated	
SourceID	The original ID of the feature class (SIS_ID)	Populated	
BeginMeasure			
EndMeasure			
RoadType			
InServiceDate	Date when asset was commissioned into service – Data not available for prototype testing	TBD	
OutOfServiceDate	Date when asset was taken out of service – Data not available for prototype testing	TBD	
UpdateTimeStamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	
LifecycleStatus	Domain based (Status code). To be set to “active” for all features	Populated	
Directionality	(Domain)		
NumberOfLanes			
SegmentWidth			
FunctionalClass			
Ownership	Describes entity responsible for maintenance of the roadway asset. The coded value domain values are to be advised.		
Description			
StreetRouteID			
StRoute_FromMeasure			
StRoute_ToMeasure			
FromNodeID	Extracted from the Base Reference Network	Populated	
ToNodeID	Extracted from the Base Reference Network	Populated	
StreetID			
RegisteredName			
StreetType			
Quadrant			
FromAddressLeft			
ToAddressLeft			
FromAddressRight			
ToAddressRight			
AddressRangeID			

Table 20:StreetSegment Feature Class

2.4.2 Object Class: Lane

Not populated at this time

Attribute	Source / Description	Status	Example
LaneID			
StreetSegID			
LaneWidth			
LaneType			
TurnDirection			
TravelDirection	Domain (?)		
StartMeasure			
EndMeasure			
LaneSequence			

Table 21: Lane Object Class

2.4.3 Feature Class: CenterlineIntersection

This is a point geometry feature class representing street (centerline) segments intersections whose 14-character CLIntersectionID was created through ArcObjects code using the following convention:

The first 6 characters represent the StreetID of the 'OnStreet' or Primary Street segment. To be considered the Primary, segments in Quadrants 1 through 4 (whose StreetID values begin with 1 through 4) must: **Leave an intersection** (and consequently have a **measure of 0**) and possess **the lowest StreetID value**. However, should there exist a Quadrant 5 segment, (whose **StreetID value begins with '5'**), it **automatically** becomes the Primary direction notwithstanding. In addition, if a particular intersection has two Quadrant 5 segments, the segment with the lower StreetID value becomes the primary.

The next 6 characters represent the StreetID of the intersecting street, which is the other leaving segment with the lowest StreetID

The last 2 characters represent a sequence used to indicate instances where the first 12 characters of the CLIntersectionID are identical (i.e. two segments intersect more than once). Thus, if 2 segments with StreetIDs values 303133 and 303471 for primary and intersecting streets respectively, intersect 4 times, the CLIntersectionID values will be as follows: 30313330347**100,** 30313330347**101,** 30313330347**102** and 30313330347**103**

The attributes of this feature class are further described in Table 22

Attribute	Source / Description	Status	Example
IntersectionPointID	A surrogate ID for the street intersection. Sequence generated by an Oracle database trigger	Populated	
SourceID	ID of the source linear feature class from the test data. Useful for tracing the lineage of the feature classes.		
NodeID	NodeID of the intersection looking at the Base Reference layer	Populated	
InServiceDate	Date when asset was commissioned into service – Data not available for prototype testing		
OutOfServiceDate	Date when asset was taken out of service – Data not available for prototype testing		
UpdateTimestamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	
LifeCycleStatus	Domain based (Status code). To be set to "active" for all features	Populated	
Description	Textual description of the centerline intersection		
SymbolRotation			
CLIntersectionID	Unique identifier for the street intersections. Source is described above	Populated	
NumberOfLink	Number of Street segmentsapproaching and leaving the intersection.	populated	
ControlType <<SubtypeField>>	ControlType 1 = Controlled ControlType 2 = AllWayStop ControlType 3 = TwoWayStop ControlType 4 = UnControlled	Populated	

Table 22: CenterlineIntersection Feature Class

2.4.4 Feature Class: DividedRoadway

(No data loaded)

Attribute	Source / Description	Loading Status	Example
NumberOfLane			
FromNodeID			
ToNodeID			
DomainName			
QuadCode			
StreetID			
BeginMeasure			
EndMeasure			
Directionality			
StreetType			
FunctionalClass			
AccessControl			
TravelDirection			
Divided			
MedianType			

Table 23: DividedRoadway Feature Class

2.4.5 Object Class: StreetNameList

This is a list of street names for the streets in the network (Application reference layer).

Attribute	Source / Description	Loading Status	Example
StreetID	Quad + StCode	Populated	
StCode	0 + Prime_St (Street Inventory System)	Populated	
StName		Populated	
StType	Whether AVE, ST, PL, CIR	Populated	
QuadCode	Quadrant within which segment lies	Populated	
Status		Populated	
UpdateTimeStamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	

Table 24: StreetNameList Object Class

2.4.6 Object Class: StreetCode

Attribute	Source / Description	Loading Status	Example
StCode	0 + Prime_St (Street Inventory System)	Populated	00040
StName		Populated	Fourth St
Status			

Table 25: StreetCode Object Class

2.4.7 Object Class: StreetNameAlias

This table stores alternate Street Names: (No data for population as of now.

2.4.8 Feature Class: AlleySegment

The alley segment feature class represents alleys in the application layer level. Although data preparation for this feature class was fairly straight forward, attention had to be paid to the creation of the QuadCode. FromNodeID, ToNodeID and SSD_ID fields.

The QuadCode values were determined by querying the location of each alley segment against the District's quadrant boundaries.

Using ArcObjects code, the FromNodeID and ToNodeID fields were populated with NodeID values of base layer nodes coincident with alleysegment endpoints.

The 8-character SSD_ID was created in two stages. First, the 1-character QuadCode and the 5-character SquareNo were concatenated to create intermediate values. These values were in turn programmatically sorted to establish whether there were instances where segments lay in the same quadrant and square. If the values were unique, then they were concatenated with the default value of **'00**'. Otherwise, an incremental

sequence was used. For Example, 3 segments situated in Quadrant 1 and Square 00140 will have SSD values of 10014**00**, 10014**01** and 10014**02** respectively.

Attribute	Source / Description	Loading Status	Example
AlleySegID	Sequence generated by an Oracle database trigger	Populated	12393
SSD_ID	QuadCode + SquareNo + Sequence	Populated	10014000
SourceID	Original alley segment id .	Populated	025001401
QuadCode	Quadrant in which segment is situated	Populated	1
BeginMeasure	Value of measure at segment beginning	Populated	0
EndMeasure	Equivalent to segment's geometric length	Populated	45.29724148
InserviceDate	Date when asset was commissioned into service – Data not available for prototype testing		
OutOfServiceDate	Date when asset was taken out of service – Data not available for prototype testing		
UpdateTimeStamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	6/1/2004 12:09:03 PM
LifeCycleStatus	Domain based (Status code). To be set to "active" for all features	Populated	
TravelDirection			
NumberOfLanes			
SegmentWidth			
Ownership	Describes entity responsible for maintenance of the roadway asset. The coded value domain values are to be advised		
Description	Textual description of the segment		
StreetName			
PrefixDirection			
RegisteredName			
SuffixType			
SuffixDirection			
FromAddressLeft			
ToAddressLeft			
FromAddressRight			
ToAddressRight			
AddressRangeID			

Table 26: AlleySegment Feature Class

2.4.9 Feature Class: DriveSegment

The Drive segment feature class represents driveways in the application layer level.

The test data from DC DOT (drive centerlines) was used as a base to create the DriveSegment feature class. Extra fields for SSD_ID and the FromNodeID and ToNodeID were created. The NodeID's were pulled from the base reference network using an ArcObjects script.

The SSD_ID was created by concatenating a number sequence with 1000

Attribute	Source / Description	Loading Status	Example
DriveSegID	Sequence generated by an Oracle database trigger	Populated	
SSD_ID	The SSD_ID was created by concatenating a sequence with 1000		
SourceID	ID of the source linear feature class from the test data.	Populated	
QuadCode		Populated	
BeginMeasure			
EndMeasure			
InServiceDate	Date when asset was commissioned into service – Data not available for prototype testing		
OutOfServiceDate	Date when asset was taken out of service – Data not available for prototype testing		
UpdateTimeStamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	
LifeCycleStatus	Domain based (Status code). To be set to "active" for all features	Populated	
TravelDirection			
SegmentWidth			
OwnerShip	Describes entity responsible for maintenance of the roadway asset.		
Description	Textual description of the segment		
FromNodeID		populated	
ToNodeID		populated	
DrivewayName			
AccessControl			

Table 27: DriveSegment Feature Class

2.4.10 Feature Class: RampSegment

The ramp segment feature class represents ramps in the application layer level.

The test data from DC DOT (ramp centerlines) was used as a base to create the RampSegment feature class. Extra fields for SSD_ID and the FromNodeID and ToNodeID were created. The NodeID's were pulled from the base reference network using an ArcObjects script.

The SSD_ID was created by determining the FromStreet and ToStreet, concatenating them sorting them to determine repeated instances and further concatenating with a two character sequence to ensure uniqueness.

Attribute	Source / Description	Loading Status	Example
RampSegID	Sequence generated by an Oracle database trigger.	Populated	
SSD_ID	Created as explained above.		
SourceID	ID of the source linear feature class from the test data. Useful for tracing the lineage of the feature classes.	Populated	
QuadCode		Populated	
BeginMeasure			
EndMeasure			
InServiceDate	Date when asset was commissioned into service – Data not available for prototype testing		
OutOfServiceDate	Date when asset was taken out of service – Data not available for prototype testing		
UpdateTimeStamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	
LifeCycleStatus	Domain based (Status code). To be set to "active" for all features	Populated	
TravelDirection			
NumberOfLanes			
SegmentWidth			
Ownership	.		
Description	Textual description of the segment		
FromSegID		Populated	
ToSegID		Populated	
ExitNumber			

Table 28: RampSegment Feature Class

2.4.11 Feature Class: RoutingSegment

The routing segment feature class represents routable segments as captured in the RRN Geodatabase test data file. This comprises slightly less segments than the base layer.

The test data from DC DOT (RRN Geodatabase) was used as a base to create the RoutingSegment feature class. Extra fields for SSD_ID and the FromNodeID and ToNodeID were created. The NodeID's were pulled from the base reference network using an ArcObjects script.

The SSD_ID was created by determining the SSD_ID of the source centerline (using a join and extracting on the SourceID) and concatenating with the two-character RoadType.

Attribute	Source / Description	Loading Status	Example
RoutingSegID	Sequence generated by an Oracle database trigger	Populated	
SSD_ID	SSD_ID of the source centerline concatenated with a two character RoadType – 01 for street and 02 for service road.	Populated	
SourceID	SourceID of the segment in dccl		
BeginMeasure			
EndMeasure			
FromNodeID	As described above		
ToNodeID	As described above		
InServiceDate	Date when asset was commissioned into service – Data not available for prototype testing		
OutOfServiceDate	Date when asset was taken out of service – Data not available for prototype testing		
UpdateTimestamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	
LifeCycleStatus	Domain based (Status code). To be set to "active" for all features	Populated	
Directionality		Populated	
NumberOfLanes			
SegmentWidth			
FumctionalClass			
Ownership			
Description	Textual description of the segment		
QuadCode			
StCode		Populated	
StreetName		Populated	
PrefixDirection			
RegisteredName			
StreetType			
FromLeftAddress			
ToLeftAddress			

Attribute	Source / Description	Loading Status	Example
FromRightAddress			
ToRightAddress			
ElevFrom			
ElevTo			
Skip			
Comments			

Table 29: RoutingSegment Feature Class

2.4.12 Object Class: RoutingTurn:

No Source data to populate this table yet**.**

Attribute	Source / Description	Loading Status	Example
TurnID			
NodeID			
FromSegID			
ToSegID			
RestrictionType			
Seg1Side			
Delay			
Skip			
Comments			
ControlType			

Table 30: RoutingTurn Object Class

2.4.13 Feature Class: RoutingTransportJunction

This feature class represents the intersections of the routable segments.

Attribute	Source / Description	Loading Status	Example
RoutingJunctionID	Sequence generated by an Oracle database trigger	Populated	
NodeID	Base layer NodeID	Populated	
XCoord			
YCoord			
Skip			
Comments			

Table 31: RoutingTransportJunction Feature Class

2.4.14 Feature Class: ServiceSegment

This feature class represents service road segments at the application layer level.

The test data from DC DOT (ServiceRoads) was used as a base to create the ServiceSegment feature class. Extra fields for SSD_ID and the FromNodeID and ToNodeID were created. The NodeID's were pulled from the base reference network using an ArcObjects script.

The SSD_ID was created by concatenating the first 6 characters of the New_Service_ID field (this is the concatenation of the 1 character quadcode and the 5 character StCode)

with the FromNodeID, ToNodeID (determined above), the 2 character RoadType and the directionality is extracted from the dccl.

Attribute	Source / Description	Loading Status	Example
ServiceSegID	Sequence generated by an Oracle database trigger	Populated	
SSD_ID	Obtained as described above	populated	
SourceID	ID of the source linear feature class from the test data. Useful for tracing the lineage of the feature classes.	Populated	
QuadCode		Populated	
BeginMeasure			
EndMeasure			
InServiceDate	Date when asset was commissioned into service – Data not available for prototype testing		
OutOfServiceDate	Date when asset was taken out of service – Data not available for prototype testing		
UpdateTimestamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	
LifeCycleStatus	Domain based (Status code). To be set to "active" for all features	Populated	
TravelDirection			
SegmentWidth			
Ownership			
Description	Textual description of the segment		
FromNodeID			
ToNodeID			
ServiceRoadName			

Table 32: ServiceSegment Feature Class

2.4.15 Feature Class: SnowPlowRoute

The snowplowroute feature class represents the designated routes for snowplows. This is maintained in the application reference network

.

The test data from DC DOT (Snowplowroutes) was used as a base to create the SnowPlowRoute feature class. Extra fields for SSD_ID and the FromNodeID and ToNodeID were created. The NodeID's were pulled from the base reference network using an ArcObjects script.

The SSD_ID was created by determining the SSD_ID of the source centerline (using a join and extracting on the SourceID) and sorting these and concatenating with a two-character sequence to ensure uniqueness.

Attribute	Source / Description	Loading Status	Example
SnowRouteSegID	Sequence generated by an Oracle database trigger	Populated	
InServiceDate	Date when asset was commissioned into service – Data not available for prototype testing	TBD. Data unavailable for prototype testing	
OutOfServiceDate	Date when asset was taken out of service – Data not available for prototype testing		
UpdateTimeStamp	Indicates the last time the table was updated. Generated by a database trigger that updates the field with the SysDate upon insert or update	Populated	
LifeCycleStatus	Domain based (Status code). To be set to "active" for all features	Populated	
SourceID	Identifier from the test data source	Populated	
SSD_ID	Described above		
RouteID			
RouteType			
SnowZone			
Ward			
NoOfLanes			
SegmentWidth			
FromNodeID	Described above		
ToNodeID	Described above		

Table 33: SnowPlowRoute Feature Class

Appendix A: Oracle Database Trigger List

Trigger Name	Table Affected	Fields ffected Primary Key
alleybaseequiv_bur	Alley_Base_Equiv	Equivid
alleysegid_bur	AlleySegment	AlleySegID
drivesegment_bur	DriveSegment	Drivewaysegid
drivewaybaseequiv_bur	Driveway_Base_Equiv	Equivid
intbaseequiv_bur	Intersection_Base_Equiv	Equivid
node_bur	Node	roadwayjunctionid
node_bur	Node	nodeid
rampbaseequiv_bur	Ramp_Base_Equiv	Equivid
rampsegid_bur	RampSegment	rampsegid
roadwayjunction_bur	RoadwayJunction	roadwayjunctionid
roadwayjunction_bur	RoadwayJunction	intersectionid
roadwayjunctionequiv_bur	RoadwayJunction_Equiv	Equivid
roadwaysegment_bur	RoadwaySegment	roadwaysegid
routingbaseequiv_bur	Routing_Base_Equiv	Equivid
routingsegment_bur	RoutingSegment	routingsegid
routingtransportjunction_bur	RoutingTransportJunction	nodeid
serviceroadbaseequiv_bur	Serviceroad_Base_Equiv	Equivid
servicesegment_bur	ServiceSegment	serviceroadsegid
streetbaseequiv_bur	Street_Base_Equiv	Equivid
streetintersection_bur	StreetIntersection	streetjunctionid
streetintersectionequiv_bur	StreetIntersection_Equiv	Equivid
streetroute_bur	StreetRoute	streetroutesegid
streetsegment_bur	StreetSegment	streetsegid

Table 34: Oracle Database Trigger List

Appendix B: Creating SSD_IDs

The SSD_ID for each feature was created as described in the table below:

Centerline	SSD_ID	Length
Street	QuadCode (1) + StCode (5) + FromNode (5) + ToNode (5) + [1]RoadType (2) + Directionality (1)	19
Ramp	FromStreetId (6) + ToStreetID (6) + Sequence(2)	14
ServiceRoad	QuadCode (1) + StCode (5) + FromNode (5) + ToNode (5) + [1]RoadType (2) + Directionality (1)	19
Alley	*QuadCode (1) +SquareNo (5) + Sequence (2)*	8
Driveways	*Sequence*	
SnowPlowRoute	*SSD_ID[2] + Sequence (2)*	
Routing Reference Network	*SSD_ID[2]+ RoadType (1)*	

Table 35: SSD_ID Conventions

[1]The RoadType is padded with '0' to create two characters. 01 for street and 02 for service rd
[2] SSD_ID of the source centerline

Appendix C: Creating Topology

Topological relationships were created after completing data loading. The participating classes, rules, errors and exceptions are shown in the table below:

Feature Class1	Rule	Feature Class2	Errors	Exceptions
AlleySegment	Must Be Covered By Feature Class Of	RoadwaySegment	2	0
StreetRoute	Must Be Covered By Feature Class Of	RoadwaySegment	1	0
DriveSegment	Must Be Covered By Feature Class Of	RoadwaySegment	2369	0
ServiceSegment	Must Be Covered By Feature Class Of	RoadwaySegment	37	0
StreetSegment	Must Be Covered By Feature Class Of	RoadwaySegment	0	0
FreewayRoute	Must Be Covered By Feature Class Of	RoadwaySegment	0	0
RampSegment	Must Be Covered By Feature Class Of	RoadwaySegment	224	0
CenterlineIntersection	Must Be Covered By Endpoint Of	StreetSegment	10	0
Intersection	Must Be Covered By Endpoint Of	RoadwaySegment	0	0
Node	Must Be Covered By Endpoint Of	RoadwaySegment	0	0
RoutingTransportJunction	Must Be Covered By Endpoint Of	RoutingSegment	0	0

Table 36: Topology Summary

Data Dictionary
For the DDOT
Street Spatial Database

Revision History

Name	Date	Reason For Changes	Version
SSD Data Dictionary Draft	10/20/04	.	Draft
SSD Data Dictionary Draft 2	11/16/04	To incorporate comments from DDOT Spatial Systems Division	Draft 2.0

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1 INTRODUCTION

1.1 Overview

This Data Dictionary describes all data elements in the District of Columbia, Department of Transportation (DDOT) Street Spatial Database Schema.

The data elements described herein are summarized below:

- Geodatabase Domains
- Geodatabase Feature Datasets
- Geodatabase Feature Classes
- Geodatabase Tables

The following Schema Objects are also described:

- Database Triggers
- Database Sequences

2 GEODATABASE DOMAINS

2.1 AccessControl (Coded Value Domain)

Usage: AccessControl attribute in RoadwaySegment Feature Class
Description: The domain AccessControl provides coded values for the Access Control attribute of the roadway segment.

Domain Value	Data Type	Initial Value	Remarks
No Access Control	Integer	1	
Has Access Control	Integer	2	

Table 1 - AccessControl Coded Value Domain

2.2 AssetCondition (Coded Value Domain)

Usage: As value for Condition attribute in all Asset Feature Classes and tables.
Description: AssetCondition provides codes for the condition of DDOT roadway assets.

Domain Value	Data Type	Initial Value	Remarks
Good – 1	Integer	1	
Fair – 2	Integer	2	
Fair – 3	Integer	3	
Fair – 4	Integer	4	
Poor – 5	Integer	5	

Table 2 - AssetCondition coded Value Domain

2.3 BooleanInt (Coded Value Domain)

Usage: True / False attribute in the TrafficAccident table.
Description: BooleanInt (Boolean Integer) provides integer values for a Boolean.

Domain Value	Data Type	Initial Value	Remarks
True	Integer	1	
False	Integer	0	

Table 3 - BooleanInt Coded Value Domain

2.4 BooleanString (Coded Value Domain)

Usage: True / False attribute in TrafficAccident
Description: BooleanString (Boolean String) provides string values for a Boolean.

Domain Value	Data Type	Initial Value	Remarks
True	String	True	
False	String	False	

Table 4 - BooleanString Coded Value Domain

2.5 CollisionType (Coded Value Domain)

Usage: CollisionType attribute in TrafficAccident
Description: CollisionType provides coded values for the different collision types that describe a traffic accident (under package Incidents).

Domain Value	Data Type	Initial Value	Remarks
Unknown	Integer	0	
Right Angle	Integer	1	
LeftTurnHitVehicle	Integer	2	
RightTurnHitVehicle	Integer	3	
RearEnd	Integer	4	
SideSwipped	Integer	5	
HeadOn	Integer	6	
ParkedVehicle	Integer	7	
FixedObject	Integer	8	
RanOffRoadway	Integer	9	
LeftTurnHitPed	Integer	10	
RightTurnHitPed	Integer	11	
StraightHitPed	Integer	12	
BackingHitMovingVeh	Integer	13	
BackingHitParkedVeh	Integer	14	

BackingHitStoppedVeh	Integer	15	
BackingHitPed	Integer	16	
NonCollisionAccident	Integer	17	
Other	Integer	99	

Table 5 - CollisionType Coded Value Domain

2.6 ControlType (Coded Value Domain)

Usage: ControlType attribute in RoadwayJunction
Description: This domain provides values to describe what kind of control an intersection has.

Domain Value	Data Type	Initial Value	Remarks
Controlled	Integer	1	
All Way Stop	Integer	2	
Two Way Stop	Integer	3	
Un Controlled	Integer	4	

Table 6 - ControlType Coded Value Domain

2.7 DayLightCondition (Coded Value Domain)

Usage: LightCondition attribute in TrafficAccident
Description: This coded value domain provides coded values to describe daylight condition at the time of a traffic accident.

Domain Value	Data Type	Initial Value	Remarks
Unknown	String	00	
DawnDusk	String	01	
Dark	String	02	
Daylight	String	03	

Table 7 - DayLightCondition Coded Value Domain

2.8 Directionality (Coded Value Domain)

Usage: Directionality attribute in RoadwaySegment
Description: This domain provides coded values representing the convention for describing flow direction of a roadway segment.

Domain Value	Data Type	Initial Value	Remarks
One Way (Digitizing Direction)	Integer	0	
One Way (Against Digitizing Direction)	Integer	1	
Two way	Integer	2	
Unknown	Integer	3	

Table 8 - Directionality Coded Value Domain

2.9 FunctionalClass (Coded Value Domain)

Usage: FunctionalClass attribute in FunctionalClassFeature
Description: This domain provides the Functional Classification codes for the different City roadways.

Domain Value	Data Type	Initial Value	Remarks
Unknown	Integer	0	
Interstate	Integer	11	
Other Freeways and Expressways	Integer	12	
Principal Arterial	Integer	14	
Minor Arterial	Integer	16	
Collector	Integer	17	
Local	Integer	19	

Table 9 - FunctionalClassification Coded Value Domain

2.10 InspectionType (Coded Value Domain)

Usage: InspectionType attribute in AssetInspectionPoint
Description: This domain provides coded values describing the various asset inspection types.

Domain Value	Data Type	Initial Value	Remarks
Alley	Integer	1	
Barrier	Integer	2	
Bridge	Integer	3	
CCTV	Integer	4	
Curb	Integer	5	
Guardrail	Integer	6	
Gutter	Integer	7	
ImpactAttenuator	Integer	8	
ParkingMeter	Integer	9	
Pavement	Integer	10	
PavementMarking	Integer	11	
PotHole	Integer	12	
Sidewalk	Integer	13	
StreetLight	Integer	14	
SupportStructure	Integer	15	
TrafficCabinet	Integer	16	
TrafficLight	Integer	17	
TrafficSign	Integer	18	
Tree	Integer	19	
Tunnel	Integer	20	

Table 10 - InspectionType Coded Value Domain

2.11 MaterialOfConstruction (Coded Value Domain)

Usage: MaterialOfConstruction attribute in SupportStructure.
Description: This domain provides coded values describing the material of construction of the various DDOT roadway assets.

Domain Value	Data Type	Initial Value	Remarks
Wood	Integer	1	
Metal	Integer	2	
Fiberglass	Integer	3	

Table 11 - MaterialOfConstruction Coded Value Domain

2.12 NodeType (Coded Value Domain)

Usage: NodeType attribute in Node (Base Reference Feature)
Description: The codes describing the different Node Types are listed in this domain.

Domain Value	Data Type	Initial Value	Remarks
End Node	Integer	1	
Boundary Node	Integer	2	
Pseudo Node	Integer	3	
Intersection	Integer	4	

Table 12 - NodeType Coded Value Domain

2.13 Ownership (Coded Value Domain)

Usage: Owner attribute in all Asset related features and tables
Description: The Ownership domain provides codes for ownership or maintenance responsibility of an asset.

Domain Value	Data Type	Initial Value	Remarks
Unknown	Integer	0	
DDOT	Integer	1	
National Park Service	Integer	2	
Architect of the Capitol	Integer	3	
Military Reservation	Integer	4	
Private	Integer	5	
WMATA-METRO	Integer	6	
Other DC Agencies	Integer	7	
Other Federal Agencies	Integer	8	

Table 13 - Ownership Coded Value Domain

2.14 PavementMarkings (Coded Value Domain)

Usage: TypeOfMarking attribute in PavementMarkingPoint
Description: This domain provides codes for the different types of pavement markings.

Domain Value	Data Type	Initial Value	Remarks
LaneMarker	Integer	1	
CrosswalkMarker	Integer	2	
WordMarker	Integer	3	
SymbolMarker	Integer	4	
ChannelizingMarker	Integer	5	

Table 14 - PavementMarkings Coded Value Domain

2.15 PermitType (Coded Value Domain)

Usage: PermitType attribute in PermitLine and PermitPoint
Description: This domain provides codes that describe the different permit types.

Domain Value	Data Type	Initial Value	Remarks
Surface	Integer	1	
Sub-Surface	Integer	2	

Table 15 - PermitType Coded Value Domain

2.16 QuadCode (Coded Value Domain)

Usage: QuadCode attribute in RoadwaySegment
Description: This coded value domain provides descriptions for the quadrant codes using in the DDOT.

Domain Value	Data Type	Initial Value	Remarks
NW	Integer	1	
NE	Integer	2	
SE	Integer	3	
SW	Integer	4	
BN (Boundary)	Integer	5	

Table 16 - QuadrantCode Coded Value Domain

2.17 RoadCondition (Coded Value Domain)

Usage: RoadCondition attribute in TrafficAccident
Description: This domain provides codes for the different types of road conditions during traffic accidents.

Domain Value	Data Type	Initial Value	Remarks
Unknown	String	00	
Repairing	String	01	
Dry	String	02	
Wet	String	03	
Ice	String	04	

Table 17 - RoadCondition Coded value Domain

2.18 ServiceRequestType (Coded Value Domain)

Usage: ServiceRequestType attribute in ServiceRequestLine
Description: This domain contains codes that describes the various service

Domain Value	Data Type	Initial Value	Remarks
Alley	Integer	1	
Barrier	Integer	2	
Bridge	Integer	3	
CCTV	Integer	4	
Curb	Integer	5	
Guardrail	Integer	6	
Gutter	Integer	7	
ImpactAttenuator	Integer	8	
ParkingMeter	Integer	9	
Pavement	Integer	10	
PavementMarking	Integer	11	
PotHole	Integer	12	
Sidewalk	Integer	13	
StreetLight	Integer	14	
SupportStructure	Integer	15	
TrafficCabinet	Integer	16	
TrafficLight	Integer	17	
TrafficSign	Integer	18	
Tree	Integer	19	
Tunnel	Integer	20	

Table 18 - ServiceRequestType Coded Value Domain

2.19 SignalType (Coded Value Domain)

Usage: SignalType attribute in TrafficLight
Description: This domain provides codes to describe the various signal types.

Domain Value	Data Type	Initial Value	Remarks
Vehicular	Integer	1	
Pedestrian	Integer	2	
Beacon	Integer	3	
SchoolFlash	Integer	4	

Table 19 - SignalType Coded Value Domain

2.20 SignType (Coded Value Domain)

Usage: SignType attribute in TrafficSign
Description: This domain provides codes to describe the various sign types.

Domain Value	Data Type	Initial Value	Remarks
Regulatory	Integer	1	
Warning	Integer	2	
Guide	Integer	3	
Construction	Integer	4	

Table 20 - SignType Coded Value Domain

2.21 StatusCode (Coded Value Domain)

Usage: As value of the LifecycleStatus attribute in all Asset features and tables
Description: This domain provides codes for the life cycle status of an asset.

Domain Value	Data Type	Initial Value	Remarks
Active	Integer	1	
Retired	Integer	2	
Paper	Integer	3	
Derived	Integer	4	
Open	Integer	5	
Close	Integer	6	
On Hold	Integer	7	
Changed	Integer	8	
New	Integer	9	
Old	Integer	10	
Deleted	Integer	11	
Completed	Integer	12	
Budgeted	Integer	13	
Under Construction	Integer	14	
Planned	Integer	15	
Under Design	Integer	16	

Table 21 - StatusCode Coded Value Domain

2.22 StreetClosureType (Coded Value Domain)

Usage: ClosureType attribute in StreetClosureLine
Description: This domain provides codes for the various types of street closure incidents.

Domain Value	Data Type	Initial Value	Remarks
Temporary	Integer	1	
Permanent	Integer	2	
Emergency	Integer	3	

Table 22 - StreetClosureType Coded Value Domain

2.23 StructureType (Coded Value Domain)

Usage: StructureType attribute in SupportStructure
Description: This domain provides codes to describe the various types of support structure.

Domain Value	Data Type	Initial Value	Remarks
10th StreetMallType	Integer	1	
NewYorkAvenueRotary	Integer	2	
RLA	Integer	3	
716	Integer	4	
16	Integer	5	
18	Integer	6	
13N	Integer	7	
14	Integer	8	
17M	Integer	9	
19M	Integer	10	
Twin-20	Integer	11	
2T	Integer	12	

Table 23 - StructureType Coded Value Domain

2.24 TrafficCondition (Coded Value Domain)

Usage: TrafficCondition attribute in TrafficAccident
Description: This domain provides codes for the traffic condition during traffic accidents.

Domain Value	Data Type	Initial Value	Remarks
Unknown	String	00	
Heavy	String	01	
Medium	String	02	
Light	String	03	
Other	String	99	

Table 24 - TrafficCondition Coded Value Domains

2.25 WeatherCondition (Coded Value Domain)

Usage: WeatherCondition attribute in TrafficAccident
Description: This domain provides codes for the weather condition during traffic accidents.

Domain Value	Data Type	Initial Value	Remarks
Unknown	String	00	
FogMist	String	01	
Clear	String	02	
Rain	String	03	
Snow	String	04	
Sleet	String	05	

Table 25 - WeatherCondition Coded Value Domain

2.26 WorkType (Coded Value Domain)

Usage: WorkType attribute in PolicyAndPlanningProjects
Description: This domain provides codes for Work Types in Policy and Planning Projects.

Domain Value	Data Type	Initial Value	Remarks
FederalAidResurfacing	Integer	1	
PavementResotation	Integer	2	

Table 26 - WorkType Coded Value Domain

3 FEATURE DATASETS

There are three feature datasets in the Street Spatial Database Schema; The Reference Features dataset, the LRS Reference Features dataset and the Event Features dataset. The Reference Features contain roadway Infrastructure feature classes (street, alley, driveway, ramp, etc.). The LRS Reference Features contain the LRS Routes (Street Route, NHS Route and School Bus Route) and the Event Features contain the event feature classes (roadway assets, activities, incidents etc.).

3.1 Event Features

Listed below are the feature classes that comprise the event features dataset:

Table 27 - Event Features Feature Dataset

	Feature Class	Geometry	Attributes	Comments
1	AADTSectionFeature	Polyline	18	
2	ActivityLineFeature	Polyline	13	
3	ActivityPointFeature	Point	13	
4	AssetInspectionLineFeature	Polyline	15	
5	AssetInspectionPointFeature	Point	15	
6	BridgeLineFeature	Polyline	20	
7	BridgePointFeature	Point	21	
8	BridgePolyFeature	Polygon	16	
9	CCTVCameraFeature	Point	16	
10	ConstructionLineFeature	Polyline	15	
11	ConstructionPointFeature	Point	15	
12	ConstructionPolyFeature	Polygon	17	
13	CurbLineFeature	Polyline	19	
14	FunctionalClassFeature	Polyline	17	
15	GuardrailFeature	Polyline	15	
16	HPMSSectionFeature	Polyline	19	
17	ImpactAttenuatorFeature	Polyline	15	
18	LongitudinalBarrierFeature	Polyline	16	
19	NHSRouteSectionFeature	Polyline	16	
20	ParkingMeterFeature	Point	16	
21	ParkingRestrictionFeature	Polyline	19	
22	PavementInspectionFeature	Polyline	17	

	Feature Class	Geometry	Attributes	Comments
23	PavementLayerFeature	Polyline	17	
24	PavementMarkingLineFeature	Polyline	17	
25	PavementMarkingPointFeature	Point	17	
26	PavementRoughnessSectionFeature	Polyline	16	
27	PavementRoughnessTestingFeature	Polyline	18	
28	PavementSkidSectionFeature	Polyline	17	
29	PavementSkidTestingFeature	Polyline	19	
30	PavementTypeSectionFeature	Polyline	16	
31	PermitLineFeature	Polyline	15	
32	PermitPointFeature	Point	15	
33	PlanningAndPolicyProject	Polygon	16	
34	ServiceRequestLineFeature	Polyline	16	
35	ServiceRequestPointFeature	Point	16	
36	SidewalkFeature	Polyline	13	
37	SpillFeature	Polygon	17	
38	StreetClosureLineFeature	Polyline	14	
39	StreetClosurePointFeature	Point	14	
40	StreetLightfeature	Point	19	
41	SupportStructureFeature	Point	17	
42	TrafficAccidentFeature	Point	31	
43	TrafficCabinetFeature	Point	20	
45	TrafficCountStationFeature	Point	15	
46	TrafficLightFeature	Point	20	
47	TrafficSignFeature	Point	20	
48	TreeFeature	Point	18	
49	WheelchairRampFeature	Point	12	

3.2 Reference Features

Listed below are the feature classes that comprise the reference features dataset:

Table 28 - Reference Features Feature Dataset

	Feature Class	Geometry	Attributes	Comments
1	AlleySegment	Polyline	29	
2	DividedRoadway	Polyline	24	
3	DriveSegment	Polyline	21	
4	RampSegment	Polyline	23	
5	RoadwaySegment	Polyline	27	
6	RoadwayJunction	Point		
7	RoutingSegment	Polyline	35	
8	RoutingTransportJunction	Point	11	
9	RoutingTurn	Point	11	
10	ServiceSegment	Polyline	27	
11	SnowPlowRoute	Polyline	18	
12	StreetIntersection	Point	13	
13	StreetSegment	Polyline	37	

3.3 LRS Reference Features

Listed below are the feature classes that comprise the LRS Reference Features

Table 29 - LRS Reference Features Dataset

	Feature Class	Geometry	Attributes	Comments
1	NHSRoute	Polyline	12	
2	Pattern	Polyline	17	
3	SchoolBusRoute	Polyline	11	
4	StreetRoute	Polyline	12	

4 GEODATABASE FEATURE CLASSES

4.1 AADTSECTIONFEATURE

Feature Dataset:	Event Features
Geometry:	Line
Number of columns:	17
Number of indexes:	0
Number of foreign keys:	0
Description	The AADSectionFeature Class is a line feature that represents the Average Annual Daily Traffic through a particular section of the roadway

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Unique identifier for asset
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier of LRS used to locate asset
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS
INSERVICEDATE	DATE		Allowed	Date commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of asset
CONDITION	NUMBER		Allowed	Condition of the asset
LENGTH	NUMBERPS(38,8)		Allowed	Linear length od asset
AADTSECTIONID	NUMBER		Allowed	Identifier for the surveyed section
COUNTSTATIONID	NUMBER		Allowed	Count Station from where AADT was surveyed
COUNTDATE	DATE		Allowed	Date of AADT record
PERCENTTRUCKS	NUMBERPS(38,8)		Allowed	
AADT	NUMBER		Allowed	Average Annual Daily Traffic
AADTACTUALORESTIMATED	VARCHAR2(255)		Allowed	True / False
SHAPE	NUMBER		Allowed	

4.2 ACTIVITYLINEFEATURE

Feature Dataset:	Event Features
Geometry:	Line
Number of columns:	12
Number of indexes:	0
Number of foreign keys:	0
Description	A generic Feature Class to represent planned linear roadway events

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	Unique identifier
RECORDDATE	DATE		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	LRS identifier
REFERENCETYPE	VARCHAR2(255)		Allowed	Describes the LRS type used
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	Description of the location of the activity
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	Description of the activity
STARTDATE	DATE		Allowed	Actual Start date of the activity
ENDDATE	DATE		Allowed	Actual End date of the activity
STATUS	VARCHAR2(255)		Allowed	Status of the activity
LINEARLENGTH	NUMBERPS(38,8)		Allowed	
SHAPE	NUMBER		Allowed	

4.3 ACTIVITYPOINTFEATURE

Feature Dataset:	Event Features
Geometry:	Point
Number of columns:	13
Number of indexes:	0
Number of foreign keys:	0
Description	A generic Feature Class to represent planned roadway events whose geometry can best be represented by a point

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	Unique identifier for the activity
RECORDDATE	DATE		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	Describes the type of LRS used
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	Description of the location of the activity
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	Description of the activity
STARTDATE	DATE		Allowed	Actual Start date of the activity
ENDDATE	DATE		Allowed	Actual End date of the activity
STATUS	VARCHAR2(255)		Allowed	Status of the activity
X_COORD	NUMBERPS(38,8)		Allowed	
Y_COORD	NUMBERPS(38,8)		Allowed	
SHAPE	NUMBER		Allowed	

4.4 ALLEYSEGMENT

Feature Dataset:	Reference Features
Geometry:	Line
Number of columns:	31
Number of indexes:	0
Number of foreign keys:	0
Description:	A linear feature representing an alley.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ALLEYSEGID	NUMBER		Not allowed	Surrogate Primary Key for alley segment
SSD_ID	VARCHAR2(8)		Not allowed	Unique Identifier for segment
SOURCEID	VARCHAR2(12)		Allowed	
QUADCODE	NUMBERPS(4,0)		Not allowed	City Quadrant code
BEGINMEASURE	NUMBERPS(38,8)		Allowed	
ENDMEASURE	NUMBERPS(38,8)		Allowed	
INSERVICEDATE	DATE		Not allowed	Date the alley was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	
UPDATETIMESTAMP	DATE		Not allowed	Date this record was last updated
LIFECYCLESTATUS	NUMBERPS(4,0)		Not allowed	Status of this asset
DIRECTIONALITY	NUMBERPS(4,0)		Not allowed	Direction of flow
NUMBEROFLANES	NUMBERPS(4,0)		Allowed	
SEGMENTWIDTH	NUMBERPS(38,8)		Allowed	
OWNERSHIP	VARCHAR2(2)		Allowed	Entity charged with maintenance
DESCRIPTION	VARCHAR2(50)		Allowed	
PROPERTYSQUARE	VARCHAR2(6)		Allowed	Identifier from DC Real Property system
FROMNODEID	NUMBER		Not allowed	ID of bounding node (start)
TONODEID	NUMBER		Not allowed	ID of bounding node (end)
STREETID	NUMBER		Allowed	Street Identifier for named alleys
REGISTEREDNAME	VARCHAR2(30)		Allowed	

STREETTYPE	VARCHAR2(4)		Allowed	
QUADRANT	VARCHAR2(2)		Allowed	NW, NE, SW or SE
FROMADDRESSLEFT	NUMBERPS(4,0)		Allowed	
TOADDRESSLEFT	NUMBERPS(4,0)		Allowed	
FROMADDRESSRIGHT	NUMBERPS(4,0)		Allowed	
TOADDRESSRIGHT	NUMBERPS(4,0)		Allowed	
ALLEY_CODE	VARCHAR2(4)		Allowed	
ST_NAME	VARCHAR2(29)		Allowed	
FDPRE	VARCHAR2(2)		Allowed	
SHAPE	NUMBER		Allowed	

4.5 ASSETINSPECTIONLINEFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 14
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class represents the activity of inspecting roadway assets whose geometry is best described as a line (Example – sidewalk)

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	
RECORDDATE	DATE		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	LRS identifier
REFERENCETYPE	VARCHAR2(255)		Allowed	Describes the LRS type used
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	Description of the location of the activity
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	Description of the activity
STARTDATE	DATE		Allowed	Actual Start date of the activity
ENDDATE	DATE		Allowed	Actual End date of the activity
STATUS	VARCHAR2(255)		Allowed	Status of the activity

LINEARLENGTH	NUMBERPS(38,8)		Allowed	
ASSETID	NUMBER		Allowed	
INSPECTIONTYPE	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.6 ASSETINSPECTIONPOINTFEATURE

Feature Dataset: Event Features
Geometry: Point
Number of columns: 15
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class represents the activity of inspecting roadway assets whose geometry is best described as a point (Examples Parking meters).

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	
RECORDDATE	DATE		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	Describes the type of LRS used
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	Description of the location of the activity
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	Description of the activity
STARTDATE	DATE		Allowed	Actual Start date of the activity
ENDDATE	DATE		Allowed	Actual End date of the activity
STATUS	VARCHAR2(255)		Allowed	Status of the activity
X_COORD	NUMBERPS(38,8)		Allowed	Planar x-coordinate of point
Y_COORD	NUMBERPS(38,8)		Allowed	Planar y-coordinate of point
ASSETID	NUMBER		Allowed	
INSPECTIONTYPE	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.7 BRIDGELINEFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 19
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class represents a bridge.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
LENGTH	NUMBERPS(38,8)		Allowed	Linear Length of Asset
BRIDGENAME	VARCHAR2(255)		Allowed	Name of Bridge in PONTIS system
BRKEY	VARCHAR2(15)		Allowed	
YEARRECON	DATE		Allowed	
YEARBUILT	DATE		Allowed	
MAXSPAN	NUMBERPS(38,8)		Allowed	
BRIDGE_ID	VARCHAR2(30)		Allowed	
STRUCTNAME	VARCHAR2(50)		Allowed	
OWNERSHIP	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.8 BRIDGEPOINTFEATURE

Feature Dataset: Event Features
Geometry: Polygon
Number of columns: 21
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class represents a bridge as a point.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used to locate Asset
REFERENCETYPE	VARCHAR2(255)		Allowed	Type of LRS
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
INSERVICEDATE	DATE		Allowed	Date Asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date Asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Current Status (See Domains)
DESCRIPTION	VARCHAR(255)		Allowed	Description of Asset
POINTMEASURE	NUMBERPS(38,8)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	
BRIDGENAME	NUMBERPS(38,8)		Allowed	Name of bridge in the PONTIS system
BRKEY	VARCHAR2(255)		Allowed	PONTIS attribute
YEARCON	DATE		Allowed	
YEARBUILT	DATE		Allowed	
LENGTH	NUMBERPS(38,8)		Allowed	
MAXSPAN	NUMBERPS(38,8)		Allowed	
BRIDGE_ID	VARCHAR2(30)		Allowed	
STRUCTNAME	VARCHAR2(50)		Allowed	
OWNER	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.9 BRIDGEPOLYFEATURE

Feature Dataset: Event Features
Geometry: Polygon
Number of columns: 14
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class represents a bridge using polygon geometry.

Columns	Data type		Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
AREA	NUMBERPS(38,8)		Allowed	Area of polygon representing bridge
BRIDGENAME	VARCHAR2(255)		Allowed	
SHAPE	NUMBER		Allowed	

4.10 CCTVCAMERAFEATURE

Feature Dataset: Event Features
Target DB name:
Number of columns: 16
Number of indexes: 0

Number of foreign keys: 0
Description: This feature class is a point geometry representing a Closed Circuit Television Camera installation.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
X_COORD	NUMBERPS(38,8)		Allowed	Planar x-coordinates (GPS acquired)
Y_COORD	NUMBERPS(38,8)		Allowed	Planar y-coordinates (GPS acquired)
ACISA	NUMBER		Allowed	Unique identifier for related traffic cabinet
STREETINTERSECTIONID	VARCHAR2(255)		Allowed	
INTERSECTIONNAME	VARCHAR2(255)		Allowed	
STRUCTUREID	NUMBER		Allowed	ID of supporting stucture (pole)
SHAPE	NUMBER		Allowed	

4.11 CONSTRUCTIONLINEFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 14
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class is a line geometry representing construction activity.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	
RECORDDATE	DATE		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	LRS identifier
REFERENCETYPE	VARCHAR2(255)		Allowed	Describes the LRS type used
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	Description of the location of the activity
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	Description of the activity
STARTDATE	DATE		Allowed	Actual Start date of the activity
ENDDATE	DATE		Allowed	Actual End date of the activity
STATUS	VARCHAR2(255)		Allowed	Status of the activity
LINEARLENGTH	NUMBERPS(38,8)		Allowed	
PROJECTID	VARCHAR2(255)		Allowed	Identifier for Activity
CONTRACTNUMBER	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.12 CONSTRUCTIONPOINTFEATURE

Feature Dataset: Event Features
Geometry: Point
Number of columns: 15
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class is apoint geometry that represents construction activity

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	
RECORDDATE	DATE		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	Describes the type of LRS used

LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	Description of the location of the activity
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	Description of the activity
STARTDATE	DATE		Allowed	Actual Start date of the activity
ENDDATE	DATE		Allowed	Actual End date of the activity
STATUS	VARCHAR2(255)		Allowed	Status of the activity
X_COORD	NUMBERPS(38,8)		Allowed	Planar x-coordinate of point
Y_COORD	NUMBERPS(38,8)		Allowed	Planar y-coordinate of point
PROJECTID	VARCHAR2(255)		Allowed	
CONTRACTNUMBER	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.13 CONSTRUCTIONPOLYFEATURE

Feature Dataset: Event Features
Geometry: Polygon
Number of columns: 15
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class is a polygon that represents construction activity

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
PROJECTID	NUMBER		Allowed	Identifier for Activity
PROJECTNAME	VARCHAR2(30)		Allowed	
LOCATIONDESCRIPTION	VARCHAR2(100)		Allowed	Description of work location
WORKTYPE	NUMBER		Allowed	Type of work (see WorkType Domain)
LIFECYCLESTATUS	VARCHAR2(20)		Allowed	Status of activity
ESTIMATEDSTARTDATE	DATE		Allowed	
ACTUALSTARTDATE	DATE		Allowed	
ESTIMATEDFINISHDATE	DATE		Allowed	
ACTUALFINISHDATE	DATE		Allowed	

ESTIMATEDCOST	NUMBERPS(38,8)		Allowed	
ACTUALCOST	NUMBERPS(38,8)		Allowed	
CONTRACTOR	VARCHAR2(30)		Allowed	
CONTRACTNUMBER	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.14 CURBLINEFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 18
Number of indexes: 0
Number of foreign keys: 0
Description: This feature classis a line geometry that represents a curb.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
LENGTH	NUMBERPS(38,8)		Allowed	Linear Length of Asset
SIDEOFROADWAY	VARCHAR2(255)		Allowed	
CURBLENGTH	NUMBERPS(38,8)		Allowed	
CURBLENGTHACTUAL	VARCHAR2(5)		Allowed	
CURBTYPE	VARCHAR2(2)		Allowed	
GUTTERTYPE	VARCHAR2(2)		Allowed	

CURBYEAR	DATE		Allowed	
CURBLOCATION	VARCHAR2(255)		Allowed	
SHAPE	NUMBER		Allowed	

4.15 DRIVESEGMENT

Feature Dataset: Reference Features
Geometry: Line
Number of columns: 20
Number of indexes: 0
Number of foreign keys: 0
Description: The Drivesegment feature class represents the driveway using line geometry.

Columns	Data type	Field Size	Allow NULLs	Descrtiption
OBJECTID	NUMBER		Not allowed	
DRIVEWAYSEGID	NUMBER		Not allowed	Surrogate Primary Key for segment
SSD_ID	VARCHAR2(5)		Not allowed	SSD system identifier (See SSD data loading document)
SOURCEID	VARCHAR2(12)		Allowed	Identifier from legacy system
BEGINMEASURE	NUMBERPS(38,8)		Allowed	
ENDMEASURE	NUMBERPS(38,8)		Allowed	
INSERVICEDATE	DATE		Not allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date taken out of service
UPDATETIMESTAMP	DATE		Not allowed	Date record was last updated
LIFECYCLESTATUS	NUMBERPS(4,0)		Not allowed	Status Code (see Domains)
DIRECTIONALITY	NUMBERPS(4,0)		Not allowed	Direction of flow (see Domains)
NUMBEROFLANES	NUMBERPS(4,0)		Allowed	
SEGMENTWIDTH	NUMBERPS(38,8)		Allowed	
OWNERSHIP	VARCHAR2(2)		Allowed	Entity responsible for maintaining this asset
DESCRIPTION	VARCHAR2(50)		Allowed	
FROMNODEID	NUMBER		Not allowed	Bounding Node ID (Start)
TONODEID	NUMBER		Not allowed	Bounding Node ID (End)
DRIVEWAYNAME	VARCHAR2(50)		Allowed	
ACCESSCONTROL	NUMBERPS(4,0)		Not allowed	

SHAPE	NUMBER		Allowed	

4.16 FUNCTIONALCLASSFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 16
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class is a line geometry that represents what functional classification a roadway segment belongs to. (Example – Interstate, Minor Arterial etc.)

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
LENGTH	NUMBERPS(38,8)		Allowed	Linear Length of Asset
PAVEMENTLINEID	VARCHAR2(255)		Allowed	
FUNCTIONALCLASS	NUMBER		Allowed	Functional Class Code (See Domains)
FUNCTIONALCLASSDESCRIPTION	VARCHAR2(255)		Allowed	
FROMSTREETINTERSECTIONID	VARCHAR2(255)		Allowed	Bounding Intersection ID (Start)
TOSTREETINTERSECTIONID	VARCHAR2(255)		Allowed	Bounding Intersection ID (End)
SHAPE	NUMBER		Allowed	

4.17 GUARDRAILFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 14
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class represents guardrails as a line geometry in a map.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
LENGTH	NUMBERPS(38,8)		Allowed	Linear Length of Asset
GUARDRAILTYPE	VARCHAR2(255)		Allowed	Type of Guardrail
MATERIALOFCONSTRUCTION	VARCHAR2(255)		Allowed	
DATEINSTALLED	DATE		Allowed	Date Guardrail was installed
SHAPE	NUMBER		Allowed	

4.18 HPMSSECTIONFEATURE

Feature Dataset:	Event Features
Geometry:	Line
Number of columns:	18
Number of indexes:	0
Number of foreign keys:	0
Description:	This feature class represents a Highway Performance Monitoring System (HPMS) sample segment.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
LENGTH	NUMBERPS(38,8)		Allowed	Linear Length of Asset
HPMSID	VARCHAR2(255)		Allowed	
COUNTSTATIONID	NUMBER		Allowed	ID of counstation from where measurements are made
SAMPLEYEAR	DATE		Allowed	HPMS record year
SECTIONTYPE	VARCHAR2(255)		Allowed	Type of HPMS Section
DONUT_AADT	VARCHAR2(255)		Allowed	AADT for DONUT sample (Not applicable to DCDOT)
STD_AADT	VARCHAR2(255)		Allowed	Standard sample AADT
AADT	NUMBER		Allowed	Average Annual Daily Traffic (AADT) of roadway section
SHAPE	NUMBER		Allowed	

4.19 IMPACTATTENUATORFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 14
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class is a line geometry that represents an impact attenuator.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
LENGTH	NUMBERPS(38,8)		Allowed	Linear Length of Asset
ATTENUATORTYPE	VARCHAR2(255)		Allowed	
MATERIALOFCONSTRUCTION	VARCHAR2(255)		Allowed	
DATEINSTALLED	DATE		Allowed	
SHAPE	NUMBER		Allowed	

4.20 LONGITUDINALBARRIERFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 15
Number of indexes: 0

Number of foreign keys: 0
Description: This feature class is a line geometry that represents a longitudinal barrier.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
LENGTH	NUMBERPS(38,8)		Allowed	Linear Length of Asset
BARRIERTYPE	VARCHAR2(255)		Allowed	
LENGTHOFSECTION	NUMBERPS(38,8)		Allowed	
MATERIALOFCONSTRUCTION	VARCHAR2(255)		Allowed	
DATEINSTALLED	DATE		Allowed	
SHAPE	NUMBER		Allowed	

4.21 NHSROUTE

Feature Dataset: LRS Reference Features
Geometry: Line
Number of columns: 11
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class represents the National Highway System (NHS) Route classification from the perspective of infrastructure.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
NHSROUTEID	NUMBER		Allowed	Suurogate primary key to identify NHS route
NHSROUTENUMBER	NUMBER		Allowed	
NHSROUTENAME	VARCHAR2(50)		Allowed	
ROUTETYPE	VARCHAR2(50)		Allowed	
LRMTYPE	VARCHAR2(50)		Allowed	LR Measurement Type
LRMUNIT	NUMBERPS(38,8)		Allowed	LR Measurement unit
MEASURELENGTH	NUMBERPS(38,8)		Allowed	
STATUS	NUMBERPS(4,0)		Allowed	
UPDATETIMESTAMP	DATE		Allowed	Date NHS route record was last updated
SHAPE	NUMBER		Allowed	

4.22 NHSROUTESECTIONFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 15
Number of indexes: 0
Number of foreign keys: 0
Description: The NHSRouteSectionFeature describes the National Highway System classification of the roadway from an asset perspective.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS Reference type
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS Type
INSERVICEDATE	DATE		Allowed	

OUTOFSERVICEDATE	DATE		Allowed	
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	
CONDITION	NUMBER		Allowed	
LENGTH	NUMBERPS(38,8)		Allowed	
PAVEMENTLINEID	VARCHAR2(255)		Allowed	
NHSROUTETYPE	VARCHAR2(255)		Allowed	
FROMSTREETINTERSECTIONID	VARCHAR2(255)		Allowed	
TOSTREETINTERSECTIONID	VARCHAR2(255)		Allowed	
SHAPE	NUMBER		Allowed	

4.23 NODE

Feature Dataset: Reference Features
Geometry: Point
Number of columns: 14
Number of indexes: 0
Number of foreign keys: 0
Description: The node is the point geometry that represent the beginning and end of an edge or the intersection of two or more edges in a network.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ROADWAYJUNCTIONID	NUMBER		Not allowed	Surrogate primary Key
SOURCEID	VARCHAR2(12)		Allowed	Identifier from legacy ystem
INSERVICEDATE	DATE		Not allowed	Date of commision
OUTOFSERVICEDATE	DATE		Allowed	Date taken out of service
UPDATETIMESTAMP	DATE		Allowed	Date of last update to this record
LIFECYCLESTATUS	NUMBERPS(4,0)		Not allowed	Status Code (Domain)
DESCRIPTION	VARCHAR2(12)		Allowed	Description of Node
SYMBOLROTATION	NUMBERPS(38,8)		Allowed	
NODEID	NUMBER		Not allowed	
NODETYPE	NUMBERPS(4,0)		Not allowed	
X_COORD	NUMBERPS(38,8)		Allowed	

Y_COORD	NUMBERPS(38,8)		Allowed	
SHAPE	NUMBER		Allowed	

4.24 PARKINGMETERFEATURE

Feature Dataset: Event Features
Geometry: Point
Number of columns: 16
Number of indexes: 0
Number of foreign keys: 0
Description: A parkingmeterfeature feature class is a point geometry representation of a parking meter.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Surrogate primary key for asset
ASSETNAME	VARCHAR2(255)		Allowed	Name of asset
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS type
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS type
INSERVICEDATE	DATE		Allowed	Date commisioned
OUTOFSERVICEDATE	DATE		Allowed	Date taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status Code (Domain)
CONDITION	NUMBER		Allowed	AssetCondition (Domain)
X_COORD	NUMBERPS(38,8)		Allowed	Planar x-coordinate (GPS acquired)
Y_COORD	NUMBERPS(38,8)		Allowed	Planar y-coordinate (GPS acquired)
PARKINGMETERNO	VARCHAR2(255)		Allowed	Registered asset number for parking meter
PARKINGMETERTYPE	VARCHAR2(255)		Allowed	
HOURSOFOPERATION	VARCHAR2(255)		Allowed	Designated hours of operation for meter
LASTMAINTAINEDDATE	DATE		Allowed	Date of last maintenance
SHAPE	NUMBER		Allowed	

4.25 PARKINGRESTRICTIONFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 18
Number of indexes: 0
Number of foreign keys: 0
Description: This line geometry represents parking restrictions.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
LENGTH	NUMBERPS(38,8)		Allowed	Linear Length of Asset
RESTRICTIONID	NUMBER		Allowed	Identifier for parking restriction
RESTRICTIONTYPE	VARCHAR2(255)		Allowed	Description of restriction
REGULATIONNO	VARCHAR2(255)		Allowed	Government regulation creating restriction
REGULATIONDESCRIPTION	VARCHAR2(255)		Allowed	Regualtion description
REGULATIONYEAR	DATE		Allowed	Year of regulation
STREETNAME	VARCHAR2(255)		Allowed	
BLOCKNO	VARCHAR2(255)		Allowed	
SHAPE	NUMBER		Allowed	

4.26 PATTERN

Feature Dataset: LRS Reference Features
Geometry: Line
Number of columns: 16
Number of indexes: 0
Number of foreign keys: 0
Description: This line feature class represents the school bus route pattern.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
SCHOOLBUSROUTEID	NUMBER		Allowed	
SCHOOLBUSROUTENAME	VARCHAR2(50)		Allowed	
ROUTEDIRECTION	VARCHAR2(50)		Allowed	
LRMTYPE	VARCHAR2(50)		Allowed	
LRMUNIT	NUMBERPS(38,8)		Allowed	
MEASURELENGTH	NUMBERPS(38,8)		Allowed	
STATUS	NUMBERPS(4,0)		Allowed	
UPDATETIMESTAMP	DATE		Allowed	
PATTERNID	NUMBER		Allowed	
PATTERNNAME	VARCHAR2(50)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
STARTTIME	VARCHAR2(50)		Allowed	
ENDTIME	VARCHAR2(50)		Allowed	
SHAPE	NUMBER		Allowed	

4.27 PAVEMENTINSPECTIONFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 16
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class represents the activity of inspecting the pavement line asset.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	
RECORDDATE	DATE		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	LRS identifier
REFERENCETYPE	VARCHAR2(255)		Allowed	Describes the LRS type used
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	Description of the location of the activity
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	Description of the activity
STARTDATE	DATE		Allowed	Actual Start date of the activity
ENDDATE	DATE		Allowed	Actual End date of the activity
STATUS	VARCHAR2(255)		Allowed	Status of the activity
LINEARLENGTH	NUMBERPS(38,8)		Allowed	
PAVEMENTLINEID	VARCHAR2(255)		Allowed	Pavement section identifier
INSPECTEDBY	VARCHAR2(255)		Allowed	Officer inspecting
INSPECTIONDATE	DATE		Allowed	
PCI	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.28 PAVEMENTLAYERFEATURE

Feature Dataset:	Event Features
Geometry:	Line
Number of columns:	16
Number of indexes:	0
Number of foreign keys:	0
Description:	This line feature class represents a layer of a section of pavement.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
LENGTH	NUMBERPS(38,8)		Allowed	Linear Length of Asset
PAVEMENTLINEID	VARCHAR2(255)		Allowed	Identifier for section of pavement
LAYERNUMBER	NUMBER		Allowed	Layer Number (Top layer = 1)
LAYERTHICKNESS	NUMBERPS(38,8)		Allowed	
LAYERMATERIAL	VARCHAR2(255)		Allowed	
DATEINSTALLED	DATE		Allowed	
SHAPE	NUMBER		Allowed	

4.29 PAVEMENTMARKINGLINEFEATURE

Feature Dataset: Event Features
Target DB name:
Number of columns: 16
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class represents pavement markings that are best described by line geometry.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
LENGTH	NUMBERPS(38,8)		Allowed	Linear Length of Asset
TYPEOFMARKING	VARCHAR2(255)		Allowed	Type of Marking (Domain)
MATERIALOFMARKING	VARCHAR2(255)		Allowed	
LENGTHOFMARKING	NUMBERPS(38,8)		Allowed	
DATEAPPLIED	DATE		Allowed	
PAVEMENTLINEID	VARCHAR2(255)		Allowed	Identifier of pavement section
SHAPE	NUMBER		Allowed	

4.30 PAVEMENTMARKINGPOINTFEATURE

Feature Dataset: Event Features
Geometry: Point
Number of columns: 15
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class represents pavement markings that are best described by point geometry.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Surrogate primary key for asset
ASSETNAME	VARCHAR2(50)		Allowed	
REFERENCEID	VARCHAR2(50)		Allowed	Identifier of LRS type used to locate asset
INSERVICEDATE	DATE		Allowed	Date commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date taken out of service
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	Status Code (Domain)
CONDITION	NUMBER		Allowed	Asset Condition (Domain)
X_COORD	NUMBERPS(38,8)		Allowed	Planar x-coordinate (GPS acquired)
Y_COORD	NUMBERPS(38,8)		Allowed	Planar y-coordinate (GPS acquired)
TYPEOFMARKING	NUMBERPS(4,0)		Allowed	
DATEAPPLIED	DATE		Allowed	
TEXTOFMARKING	VARCHAR2(50)		Allowed	
SHAPE	NUMBER		Allowed	
PAVEMENTLINEID	NUMBERPS(9,0)		Allowed	Pavement section identifier

4.31 PAVEMENTSKIDSECTIONFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 16
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class represents a section of pavement with a particular skid value.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Surrogate primary for asset
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
LENGTH	NUMBERPS(38,8)		Allowed	Linear Length of Asset
LANENUMBER	NUMBER		Allowed	
DIRECTION	VARCHAR2(255)		Allowed	Direction along which skid was taken
TESTDATE	DATE		Allowed	
SKID	NUMBERPS(38,8)		Allowed	Skid value for pavement section
PAVEMENTLINEID	VARCHAR2(255)		Allowed	
SHAPE	NUMBER		Allowed	

4.32 PAVEMENTSKIDTESTINGFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 18
Number of indexes: 0
Number of foreign keys: 0
Description: This line feature class represents the activity of pavement skid testing.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	Suurogate primary key for activity
RECORDDATE	DATE		Allowed	Date of skid testing
REFERENCEID	VARCHAR2(20)		Allowed	Identifier for LRS used to locate activity
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS type
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	Description of location
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	Description of activity
STARTDATE	DATE		Allowed	
ENDDATE	DATE		Allowed	
STATUS	VARCHAR2(255)		Allowed	
LINEARLENGTH	NUMBERPS(38,8)		Allowed	
PAVEMENTLINEID	VARCHAR2(255)		Allowed	Pavement section identifier
LANENUMBER	NUMBER		Allowed	
DIRECTION	VARCHAR2(255)		Allowed	Direction of skid measurement
TESTDATE	DATE		Allowed	Date of skid measurement
TESTEDBY	VARCHAR2(255)		Allowed	Officer carrying out the test
SKID	NUMBERPS(38,8)		Allowed	Value of skid measured
SHAPE	NUMBER		Allowed	

4.33 PAVEMENTTYPESECTIONFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 15
Number of indexes: 0
Number of foreign keys: 0
Description: This line feature class represents pavement sections of the same pavement type.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Surrogate primary key of asset
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
LENGTH	NUMBERPS(38,8)		Allowed	Linear Length of Asset
PAVEMENTLINEID	VARCHAR2(255)		Allowed	
PAVEMENTTYPE	VARCHAR2(255)		Allowed	Pavement Type of the pavement section
NUMBEROFLAYERS	NUMBER		Allowed	Number of pavement layers
PAVEMENTWIDTH	NUMBERPS(38,8)		Allowed	Width of pavement section
SHAPE	NUMBER		Allowed	

4.34 PAVEMNTROUGHNESSSECTFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 15
Number of indexes: 0
Number of foreign keys: 0
Description: The pavement roughness section feature class represents a section of pavement with the same roughness.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
LENGTH	NUMBERPS(38,8)		Allowed	Linear Length of Asset
LANENUMBER	NUMBER		Allowed	
TESTDATE	DATE		Allowed	Date roughness was tested
IRI	NUMBER		Allowed	International Roughness Index
PAVEMENTLINEID	VARCHAR2(255)		Allowed	Pavement section identifier
SHAPE	NUMBER		Allowed	

4.35 PAVEMNTROUGHNESSTESTFEATURE

Feature Dataset: Event Features
Target DB name:
Number of columns: 17
Number of indexes: 0
Number of foreign keys: 0
Codes: 0

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	Surrogate primary key for activity
RECORDDATE	DATE		Allowed	Date of roughness test
REFERENCEID	VARCHAR2(20)		Allowed	Identifier of LRS used to locate activity
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	Description of Location
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	Description of activity (roughness testing)
STARTDATE	DATE		Allowed	
ENDDATE	DATE		Allowed	
STATUS	VARCHAR2(255)		Allowed	Current status of activity
LINEARLENGTH	NUMBERPS(38,8)		Allowed	Length of pavement section tested for roughness
PAVEMENTLINEID	VARCHAR2(255)		Allowed	
LANENUMBER	NUMBER		Allowed	
TESTDATE	DATE		Allowed	
TESTEDBY	VARCHAR2(255)		Allowed	
IRI	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.36 PERMITLINEFEATURE

Feature Dataset:	Event Features
Geometry:	Line
Number of columns:	14
Number of indexes:	0
Number of foreign keys:	0
Description:	This feature class represents rights of way permitting for an activity that is best represented by line geometry.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	Surrogate primary key for activity
RECORDDATE	DATE		Allowed	Date of the permitting activity
REFERENCEID	VARCHAR2(20)		Allowed	Identifier of LRS used to locate activity
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	Description of location
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	Description of permitting activity
STARTDATE	DATE		Allowed	
ENDDATE	DATE		Allowed	
STATUS	VARCHAR2(255)		Allowed	
LINEARLENGTH	NUMBERPS(38,8)		Allowed	
PERMITID	NUMBER		Allowed	
PERMITTYPE	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.37 PERMITPOINTFEATURE

Feature Dataset:	Event Features
Geometry:	
Number of columns:	15
Number of indexes:	0
Number of foreign keys:	0
Codes:	0

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	Surrogate primary key for activity
RECORDDATE	DATE		Allowed	Date of the permitting activity
REFERENCEID	VARCHAR2(20)		Allowed	Identifier of LRS used to locate activity
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	Description of location
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	Description of permitting activity
STARTDATE	DATE		Allowed	
ENDDATE	DATE		Allowed	
STATUS	VARCHAR2(255)		Allowed	
X_COORD	NUMBERPS(38,8)		Allowed	
Y_COORD	NUMBERPS(38,8)		Allowed	
PERMITID	NUMBER		Allowed	
PERMITTYPE	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.38 PLANNINGANDPOLICYPROJECT

Feature Dataset: Event Features
Geometry: Polygon
Number of columns: 14
Number of indexes: 0
Number of foreign keys: 0
Description: This polygon feature class represents a policy and planning project (a capital project).

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
PROJECTID	NUMBER		Allowed	Project Identifier
PROJECTNAME	VARCHAR2(30)		Allowed	Descriptive name of Project
LOCATIONDESCRIPTION	VARCHAR2(100)		Allowed	Description of location
WORKTYPE	NUMBER		Allowed	WorkType (Domain)
LIFECYCLESTATUS	VARCHAR2(20)		Allowed	Status of the Project
ESTIMATEDSTARTDATE	DATE		Allowed	
ACTUALSTARTDATE	DATE		Allowed	
ESTIMATEDFINISHDATE	DATE		Allowed	
ACTUALFINISHDATE	DATE		Allowed	
ESTIMATEDCOST	NUMBERPS(38,8)		Allowed	
ACTUALCOST	NUMBERPS(38,8)		Allowed	
CONTRACTOR	VARCHAR2(30)		Allowed	
SHAPE	NUMBER		Allowed	

4.39 RAMPSEGMENT

Feature Dataset: Reference Features
Geometry: Line
Number of columns: 28
Number of indexes: 0

Number of foreign keys: 0
Description: This feature class represents a ramp.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
RAMPSEGID	NUMBER		Not allowed	Surrogate primary key for Ramp Segment
SSD_ID	VARCHAR2(14)		Not allowed	SSD System ID
SOURCEID	VARCHAR2(18)		Allowed	
QUADCODE	NUMBERPS(4,0)		Not allowed	City Quadrant code
BEGINMEASURE	NUMBERPS(38,8)		Allowed	
ENDMEASURE	NUMBERPS(38,8)		Allowed	
INSERVICEDATE	DATE		Not allowed	Date commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date taken out of service
UPDATETIMESTAMP	DATE		Not allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Not allowed	
DIRECTIONALITY	NUMBERPS(4,0)		Not allowed	
NUMBEROFLANES	NUMBERPS(4,0)		Allowed	
SEGMENTWIDTH	NUMBERPS(38,8)		Allowed	
OWNERSHIP	VARCHAR2(2)		Allowed	Entity responsible for maintenance of the ramp
DESCRIPTION	VARCHAR2(50)		Allowed	
FROMNODEID	NUMBER		Not allowed	
TONODEID	NUMBER		Not allowed	
FROMSTREETID	NUMBER		Not allowed	
TOSTREETID	NUMBER		Not allowed	
EXITNO	VARCHAR2(10)		Allowed	
OLD_ARAMP_ID	VARCHAR2(12)		Allowed	Legacy system Ramp ID
FROM_SISID	VARCHAR2(8)		Allowed	
TO_SISID	VARCHAR2(8)		Allowed	
SEQ	VARCHAR2(2)		Allowed	
D1	NUMBERPS(38,8)		Allowed	
D2	NUMBERPS(38,8)		Allowed	
SHAPE	NUMBER		Allowed	

4.40 ROADWAYJUNCTION

Feature Dataset: Reference Features
Geometry: Point
Number of columns: 15
Number of indexes: 0
Number of foreign keys: 0
Description: This point feature class represent an intersection at the base reference layer of the Street Spatial Data Model.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ROADWAYJUNCTIONID	NUMBER		Not allowed	Surrogate primary key for point feature
SOURCEID	VARCHAR2(12)		Allowed	ID of feature in legacy system
INSERVICEDATE	DATE		Not allowed	Date commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date taken out of service
UPDATETIMESTAMP	DATE		Not allowed	Date of last update to this record
LIFECYCLESTATUS	NUMBERPS(4,0)		Not allowed	Status Code (Domain)
DESCRIPTION	VARCHAR2(12)		Allowed	
SYMBOLROTATION	NUMBERPS(38,8)		Allowed	
INTERSECTIONID	NUMBER		Not allowed	
NODEID	NUMBER		Not allowed	
NUMBEROFLINK	NUMBER		Not allowed	Number of segments that meet at this intersection
CONTROLTYPE	NUMBERPS(4,0)		Not allowed	Control Type (see Domains)
INTERSECTIONTYPE	NUMBERPS(4,0)		Not allowed	
SHAPE	NUMBER		Allowed	

4.41 ROADWAYSEGMENT

Feature Dataset: Reference Features
Geometry: Line
Number of columns: 33
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class represents a linear feature in the base reference layer of the Street Spatial Data Model. It has 5 subtypes – Street, Service Road, Ramp, Driveway and Alley.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ROADWAYSEGID	NUMBER		Not allowed	Surrogate primary key
SOURCEID	VARCHAR2(20)		Allowed	
QUADCODE	NUMBERPS(4,0)		Not allowed	City Quadrant code
INSERVICEDATE	DATE		Not allowed	Date commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date taken out of service
UPDATETIMESTAMP	DATE		Not allowed	Date of last update to this record
LIFECYCLESTATUS	NUMBERPS(4,0)		Not allowed	Status Code (Domain)
SEGMENTLENGTH	NUMBERPS(38,8)		Allowed	
DESCRIPTION	VARCHAR2(50)		Allowed	
FROMNODEID	NUMBER		Not allowed	
TONODEID	NUMBER		Not allowed	
DIRECTIONALITY	NUMBERPS(4,0)		Not allowed	
OWNERSHIP	VARCHAR2(2)		Allowed	Entity responsible for maintenance
QUADRANT	VARCHAR2(2)		Allowed	
STREETID	VARCHAR2(6)		Allowed	
FROMSEGID	NUMBER		Allowed	
TOSEGID	NUMBER		Allowed	
EXITNO	VARCHAR2(10)		Allowed	
RAMPID	VARCHAR2(50)		Allowed	
RAMPNAME	VARCHAR2(50)		Allowed	
DRIVEWAYNAME	VARCHAR2(50)		Allowed	

LOCATION	VARCHAR2(50)		Allowed	
ACCESSCONTROL	NUMBERPS(4,0)		Not allowed	
ROADTYPE	NUMBERPS(4,0)		Not allowed	
ADDRESSRANGEID	NUMBER		Allowed	
STREETSEGID	NUMBER		Allowed	
SERVICEROADSEGID	NUMBER		Allowed	
RAMPSEGID	NUMBER		Allowed	
ALLEYSEGID	NUMBER		Allowed	
DRIVEWAYSEGID	NUMBER		Allowed	
SSD_ID	VARCHAR2(20)		Allowed	
SHAPE	NUMBER		Allowed	

4.42 ROUTINGSEGMENT

Feature Dataset: Reference Features
Geometry: Line
Number of columns: 54
Number of indexes: 0
Number of foreign keys: 0
Description: Any routable segment – includes all 5 roadway subtypes.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ROUTINGSEGID	NUMBER		Not allowed	Surrogate primary key of routingsegment
SSD_ID	VARCHAR2(8)		Allowed	SSD System Identifier for segment
QUADCODE	NUMBERPS(4,0)		Not allowed	Quadrant code
SOURCEID	VARCHAR2(12)		Allowed	
BEGINMEASURE	NUMBERPS(38,8)		Allowed	
ENDMEASURE	NUMBERPS(38,8)		Allowed	
INSERVICEDATE	DATE		Not allowed	Date commisioned intoservice
OUTOFSERVICEDATE	DATE		Allowed	Date taken out of service
UPDATETIMESTAMP	DATE		Not allowed	Date of last update of this record

LIFECYCLESTATUS	NUMBERPS(4,0)		Not allowed	
DIRECTIONALITY	NUMBERPS(4,0)		Not allowed	
NUMBEROFLANES	NUMBERPS(4,0)		Allowed	
SEGMENTWIDTH	NUMBERPS(38,8)		Allowed	
FUNCTIONALCLASS	VARCHAR2(2)		Allowed	
OWNERSHIP	VARCHAR2(2)		Allowed	Entity responsible for maintaining this asset
DESCRIPTION	VARCHAR2(50)		Allowed	
FROMNODEID	NUMBER		Not allowed	
TONODEID	NUMBER		Not allowed	
STREETID	NUMBER		Allowed	
REGISTEREDNAME	VARCHAR2(30)		Allowed	
STREETTYPE	VARCHAR2(4)		Allowed	
QUADRANT	VARCHAR2(2)		Allowed	NW, NE, SE or SW
FROMADDRESSLEFT	NUMBERPS(38,8)		Allowed	
TOADDRESSLEFT	NUMBERPS(38,8)		Allowed	
FROMADDRESSRIGHT	NUMBERPS(38,8)		Allowed	
TOADDRESSRIGHT	NUMBERPS(38,8)		Allowed	
ELEVFROM	NUMBER		Allowed	
ELEVTO	NUMBER		Allowed	
SKIP	NUMBERPS(4,0)		Allowed	
COMMENTS	VARCHAR2(50)		Allowed	
ROADWAYSEGID	NUMBER		Allowed	
FNODE_1	NUMBER		Allowed	
TNODE_1	NUMBER		Allowed	
LPOLY_1	NUMBER		Allowed	
RPOLY_1	NUMBER		Allowed	
SCL_CODE	NUMBERPS(38,8)		Allowed	
DXF_LAYER	VARCHAR2(16)		Allowed	
PRIME_ST	VARCHAR2(4)		Allowed	
INT_SEQ	VARCHAR2(3)		Allowed	
ST_NAME	VARCHAR2(29)		Allowed	
FDPRE	VARCHAR2(2)		Allowed	
LEFTADD1	NUMBERPS(38,8)		Allowed	
LEFTADD2	NUMBERPS(38,8)		Allowed	

RGTADD1	NUMBERPS(38,8)		Allowed	
RGTADD2	NUMBERPS(38,8)		Allowed	
SQUARE	VARCHAR2(6)		Allowed	
DIRECTION	NUMBER		Allowed	
DDOT_DIR	NUMBER		Allowed	
LINK_ID	NUMBERPS(38,8)		Allowed	
PROBLEM	VARCHAR2(20)		Allowed	
SHAPE_LENGTH_1	NUMBERPS(38,8)		Allowed	
STATUS	NUMBERPS(4,0)		Allowed	
SHAPE	NUMBER		Allowed	

4.43 ROUTINGTRANSPORTJUNCTION

Feature Dataset: Reference Features
Geometry: Point
Number of columns: 12
Number of indexes: 0
Number of foreign keys: 0
Description: The intersection of two or more routing segments occur at a RotingTransportJunction.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
NODEID	NUMBER		Not allowed	Suurogate primary key
SKIP	NUMBERPS(4,0)		Allowed	
INSERVICEDATE	DATE		Not allowed	Date commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date taken out of service
UPDATETIMESTAMP	DATE		Not allowed	Date this record was last updated
LIFECYCLESTATUS	NUMBERPS(4,0)		Not allowed	Status Code (Domain)
COMMENTS	VARCHAR2(50)		Allowed	
X_COORD	NUMBERPS(38,8)		Allowed	
Y_COORD	NUMBERPS(38,8)		Allowed	

DCCL_ID	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.44 SCHOOLBUSROUTE

Feature Dataset: LRS Reference Features
Geometry: Polyline
Number of columns: 10
Number of indexes: 0
Number of foreign keys: 0
Description: A polyline feature class representing a school bus route.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
SCHOOLBUSROUTEID	NUMBER		Allowed	Primary key identifier for school bus route
SCHOOLBUSROUTENAME	VARCHAR2(50)		Allowed	Name of route
ROUTEDIRECTION	VARCHAR2(50)		Allowed	
LRMTYPE	VARCHAR2(50)		Allowed	
LRMUNIT	NUMBERPS(38,8)		Allowed	
MEASURELENGTH	NUMBERPS(38,8)		Allowed	
STATUS	NUMBERPS(4,0)		Allowed	
UPDATETIMESTAMP	DATE		Allowed	Date this record was last updated
SHAPE	NUMBER		Allowed	

4.45 SERVICEREQUESTLINEFEATURE

Feature Dataset:	Event Features
Geometry:	Line
Number of columns:	15
Number of indexes:	0
Number of foreign keys:	0
Description:	This feature class represents a call for service on an asset that is best represented by line geometry.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
INCIDENTID	NUMBER		Allowed	Surrogate primary key for incident
REFERENCEID	VARCHAR2(20)		Allowed	Identifier of LRS used to locate activity
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS
INCIDENTTIMESTAMP	DATE		Allowed	
STARTTIMESTAMP	DATE		Allowed	
ENDTIMESTAMP	DATE		Allowed	
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	
INSYSTEMDATE	DATE		Allowed	Date request was entered into system
ARCHIVEDDATE	DATE		Allowed	Date the request was archived
GRAPHICLENGTH	NUMBERPS(38,8)		Allowed	
SERVICEREQUESTTYPE	NUMBER		Allowed	
SERVICEREQUESTSOURCE	VARCHAR2(255)		Allowed	
SOURCEID	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.46 SERVICEREQUESTPOINTFEATURE

Feature Dataset:	Event Features
Geometry:	Point
Number of columns:	16
Number of indexes:	0
Number of foreign keys:	0
Description:	This feature class represents a call for service on an asset that is best represented by point geometry.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
INCIDENTID	NUMBER		Allowed	Surrogate primary key for incident
REFERENCEID	VARCHAR2(20)		Allowed	Identifier of LRS used to locate activity
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS
INCIDENTTIMESTAMP	DATE		Allowed	
STARTTIMESTAMP	DATE		Allowed	
ENDTIMESTAMP	DATE		Allowed	
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	
INSYSTEMDATE	DATE		Allowed	
ARCHIVEDDATE	DATE		Allowed	
X_COORD	NUMBERPS(38,8)		Allowed	
Y_COORD	NUMBERPS(38,8)		Allowed	
SERVICEREQUESTTYPE	NUMBER		Allowed	
SERVICEREQUESTSOURCE	VARCHAR2(255)		Allowed	
SOURCEID	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.47 SERVICESEGMENT

Feature Dataset: Reference Features
Geometry: Line
Number of columns: 28
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class represents a service road segment

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
SERVICEROADSEGID	NUMBER		Not allowed	Surrogate primary key
SSD_ID	VARCHAR2(19)		Allowed	SSD system identifier
SOURCEID	VARCHAR2(12)		Allowed	Identifier from legacy system
QUADCODE	NUMBERPS(4,0)		Not allowed	City quadrant code (Domain)
BEGINMEASURE	NUMBERPS(38,8)		Allowed	
ENDMEASURE	NUMBERPS(38,8)		Allowed	
INSERVICEDATE	DATE		Not allowed	Date commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date taken out of service
UPDATETIMESTAMP	DATE		Not allowed	Date this record was last updated
LIFECYCLESTATUS	NUMBERPS(4,0)		Not allowed	Status Code (Domain)
DIRECTIONALITY	NUMBERPS(4,0)		Not allowed	
NUMBEROFLANES	NUMBERPS(4,0)		Allowed	
SEGMENTWIDTH	NUMBERPS(38,8)		Allowed	
OWNERSHIP	VARCHAR2(2)		Allowed	Entity responsible for maintenance
DESCRIPTION	VARCHAR2(50)		Allowed	
FROMNODEID	NUMBER		Not allowed	
TONODEID	NUMBER		Not allowed	
STREETID	NUMBER		Allowed	
REGISTEREDNAME	VARCHAR2(30)		Allowed	
STREETTYPE	VARCHAR2(4)		Allowed	
QUADRANT	VARCHAR2(2)		Allowed	

FROMADDRESSLEFT	NUMBERPS(4,0)		Allowed	
TOADDRESSLEFT	NUMBERPS(4,0)		Allowed	
FROMADDRESSRIGHT	NUMBERPS(4,0)		Allowed	
TOADDRESSRIGHT	NUMBERPS(4,0)		Allowed	
SRVC_ID	VARCHAR2(12)		Allowed	
SHAPE	NUMBER		Allowed	

4.48 SIDEWALKFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 12
Number of indexes: 0
Number of foreign keys: 0
Description: This line feature class represents the sidewalk

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
INSERVICEDATE	DATE		Allowed	
OUTOFSERVICEDATE	DATE		Allowed	
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Stauts Code (Domain)
CONDITION	NUMBER		Allowed	Asset Condition (Domain)
LENGTH	NUMBERPS(38,8)		Allowed	
SIDEWALKWIDTH	NUMBERPS(38,8)		Allowed	
SHAPE	NUMBER		Allowed	

4.49 SPILLFEATURE

Feature Dataset: Event Features
Geometry: Polygon
Number of columns: 15
Number of indexes: 0
Number of foreign keys: 0
Description: This polygon feature class represents a spill incident on or around the roadway.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
INCIDENTID	NUMBER		Allowed	Identifier for spill incident
REFERENCEID	VARCHAR2(20)		Allowed	Identifier of LRS used to locate incident
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS
INCIDENTTIMESTAMP	DATE		Allowed	
STARTTIMESTAMP	DATE		Allowed	
ENDTIMESTAMP	DATE		Allowed	
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	
INSYSTEMDATE	DATE		Allowed	
ARCHIVEDDATE	DATE		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
IMPACTAREA	NUMBERPS(38,8)		Allowed	
SPILLSTATUS	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.50 STREETCLOSURELINEFEATURE

Feature Dataset: Event Features
Geometry: Line
Number of columns: 13
Number of indexes: 0
Number of foreign keys: 0
Description: This line feature class represents a street closure incident.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
INCIDENTID	NUMBER		Allowed	Incident identifier
REFERENCEID	VARCHAR2(20)		Allowed	Identifier for LRS type used to locate incident
REFERENCETYPE	VARCHAR2(255)		Allowed	LRS type description
INCIDENTTIMESTAMP	DATE		Allowed	
STARTTIMESTAMP	DATE		Allowed	
ENDTIMESTAMP	DATE		Allowed	
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	
INSYSTEMDATE	DATE		Allowed	Date incident was entered into system
ARCHIVEDDATE	DATE		Allowed	Date incident was archived
GRAPHICLENGTH	NUMBERPS(38,8)		Allowed	
CLOSURETYPE	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.51 STREETCLOSUREPOINTFEATURE

Feature Dataset: Event Features
Geometry: Point
Number of columns: 14
Number of indexes: 0
Number of foreign keys: 0

Description: This point feature class represents a street closure incident.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
INCIDENTID	NUMBER		Allowed	Incident identifier
REFERENCEID	VARCHAR2(20)		Allowed	Identifier for LRS type used to locate incident
REFERENCETYPE	VARCHAR2(255)		Allowed	LRS type description
INCIDENTTIMESTAMP	DATE		Allowed	
STARTTIMESTAMP	DATE		Allowed	
ENDTIMESTAMP	DATE		Allowed	
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	
INSYSTEMDATE	DATE		Allowed	Date incident was entered into system
ARCHIVEDDATE	DATE		Allowed	Date incident was archived
X_COORD	NUMBERPS(38,8)		Allowed	
Y_COORD	NUMBERPS(38,8)		Allowed	
CLOSURETYPE	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.52 STREETINTERSECTION

Feature Dataset: Event Features
Geometry: Point
Number of columns: 13
Number of indexes: 0
Number of foreign keys: 0
Description: The streetintersection represents a point where two or more street segments intersect.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
STREETJUNCTIONID	NUMBER		Not allowed	Surrogate primary key to identify feature

SOURCEID	VARCHAR2(12)		Allowed	Identifier from legacy system
INSERVICEDATE	DATE		Not allowed	Date commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date taken out of service
UPDATETIMESTAMP	DATE		Not allowed	Date this record was last updated
LIFECYCLESTATUS	NUMBERPS(4,0)		Not allowed	Status Code (Domain)
DESCRIPTION	VARCHAR2(12)		Allowed	
SYMBOLROTATION	NUMBERPS(38,8)		Allowed	
SREETINTERSECTIONID	VARCHAR2(255)		Not allowed	
NUMBEROFLINK	NUMBER		Not allowed	
CONTROLTYPE	NUMBERPS(4,0)		Allowed	
SHAPE	NUMBER		Allowed	

4.53 STREETLIGHTFEATURE

Feature Dataset: Event Features
Geometry: Point
Number of columns: 19
Number of indexes: 0
Number of foreign keys: 0
Description: This point feature class represents a street light.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Surrogate primary key for identifying asset
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS type used to locate incident
REFERENCETYPE	VARCHAR2(255)		Allowed	LRS type description
INSERVICEDATE	DATE		Allowed	Date commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status Code (Domain)
CONDITION	NUMBER		Allowed	Asset Condition (Domain)

X_COORD	NUMBERPS(38,8)		Allowed	Planar x-coordinate (GPS acquired)
Y_COORD	NUMBERPS(38,8)		Allowed	Planar y-coordinate (GPS acquired)
STREETLIGHTID	NUMBER		Allowed	Identifier of street light
BULBTYPE	VARCHAR2(255)		Allowed	
BULBCOLOR	VARCHAR2(255)		Allowed	
WATTAGE	VARCHAR2(255)		Allowed	
SYSTEMFEED	VARCHAR2(255)		Allowed	Power source – underground or overhead
TYPEOFWIRING	VARCHAR2(255)		Allowed	
STRUCTUREID	NUMBER		Allowed	ID of suuport structure (pole)
SHAPE	NUMBER		Allowed	

4.54 STREETROUTE

Feature Dataset: LRS Reference Features
Geometry: Polyline
Number of columns: 12
Number of indexes: 0
Number of foreign keys: 0
Description: This polyline feature class serves as an inventory route for the LRS system and comprises all street segments in a street.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
STREETROUTESEGID	NUMBER		Allowed	Surrogateprimary key identifier for Street route
STREETROUTEID	NUMBER		Allowed	Street ID
STREETROUTENAME	VARCHAR2(50)		Allowed	
LRMTYPE	VARCHAR2(50)		Allowed	
LRMUNIT	NUMBERPS(38,8)		Allowed	
MEASURELENGTH	NUMBERPS(38,8)		Allowed	
BEGINMEASURE	NUMBERPS(38,8)		Allowed	
ENDMEASURE	NUMBERPS(38,8)		Allowed	

STATUS	NUMBERPS(4,0)		Not allowed	
UPDATETIMESTAMP	DATE		Allowed	
SHAPE	NUMBER		Allowed	

4.55 STREETSEGMENT

Feature Dataset: Reference Features
Geometry: Line
Number of columns: 40
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class represents a single segment (block) of the street network

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
STREETSEGID	NUMBER		Not allowed	Surrogate primary key identifier
SSD_ID	VARCHAR2(19)		Allowed	SSD system identifier
SOURCEID	VARCHAR2(12)		Allowed	Legacy system identifier
QUADCODE	NUMBERPS(4,0)		Not allowed	City quadrant code (Domain)
BEGINMEASURE	NUMBERPS(38,8)		Allowed	
ENDMEASURE	NUMBERPS(38,8)		Allowed	
INSERVICEDATE	DATE		Not allowed	Date commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date taken out of service
UPDATETIMESTAMP	DATE		Not allowed	Date of last update to this record
LIFECYCLESTATUS	NUMBERPS(4,0)		Not allowed	Status Code (Domain)
DIRECTIONALITY	NUMBERPS(4,0)		Not allowed	
NUMBEROFLANES	NUMBERPS(4,0)		Allowed	
SEGMENTWIDTH	NUMBERPS(38,8)		Allowed	
OWNERSHIP	VARCHAR2(2)		Allowed	Entity responsible for maintenance

DESCRIPTION	VARCHAR2(50)		Allowed	
SEGMENTTYPE	NUMBERPS(4,0)		Not allowed	
STREETROUTEID	NUMBER		Allowed	
STROUTEFROMMEASURE	NUMBERPS(38,8)		Allowed	
STROUTETOMEASURE	NUMBERPS(38,8)		Allowed	
FROMNODEID	NUMBER		Not allowed	
TONODEID	NUMBER		Not allowed	
STREETID	NUMBER		Not allowed	
REGISTEREDNAME	VARCHAR2(30)		Not allowed	
STREETTYPE	VARCHAR2(4)		Allowed	
QUADRANT	VARCHAR2(2)		Not allowed	
FROMADDRESSLEFT	NUMBERPS(4,0)		Allowed	
TOADDRESSLEFT	NUMBERPS(4,0)		Allowed	
FROMADDRESSRIGHT	NUMBERPS(4,0)		Allowed	
TOADDRESSRIGHT	NUMBERPS(4,0)		Allowed	
PRIME_ST	VARCHAR2(4)		Allowed	
INT_SEQ	VARCHAR2(3)		Allowed	
ST_NAME	VARCHAR2(29)		Allowed	
FDPRE	VARCHAR2(2)		Allowed	
LEFTADD1	NUMBERPS(38,8)		Allowed	
LEFTADD2	NUMBERPS(38,8)		Allowed	
RGTADD1	NUMBERPS(38,8)		Allowed	
RGTADD2	NUMBERPS(38,8)		Allowed	
SHAPE	NUMBER		Allowed	
NHSROUTEID	NUMBERPS(9,0)		Allowed	

4.56 SUPPORTSTRUCTUREFEATURE

Feature Dataset: Event Features

Geometry: Point
Number of columns: 17
Number of indexes: 0
Number of foreign keys: 0
Description: The point feature class supportstructurefeature represents poles that support assets such as streetlights, traffic signals,

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Suurogate primary key of feature
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS type used to locate incident
REFERENCETYPE	VARCHAR2(255)		Allowed	LRS type description
INSERVICEDATE	DATE		Allowed	
OUTOFSERVICEDATE	DATE		Allowed	
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	
CONDITION	NUMBER		Allowed	
X_COORD	NUMBERPS(38,8)		Allowed	
Y_COORD	NUMBERPS(38,8)		Allowed	
STRUCTUREID	NUMBER		Allowed	
STRUCTURETYPE	NUMBER		Allowed	
MATERIALOFCONSTRUCTION	NUMBER		Allowed	
OWNERSHIP	VARCHAR2(255)		Allowed	
T_BASECONDITION	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.57 TRAFFICACCIDENTFEATURE

Feature Dataset: Event Features
Geometry: Point
Number of columns: 31

Number of indexes: 0
Number of foreign keys: 0
Description: This point feature class represents the incident of a traffic accident.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
INCIDENTID	NUMBER		Allowed	Surrogate primary key identifier for incident
REFERENCEID	VARCHAR2(20)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
INCIDENTTIMESTAMP	DATE		Allowed	
STARTTIMESTAMP	DATE		Allowed	
ENDTIMESTAMP	DATE		Allowed	
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	
INSYSTEMDATE	DATE		Allowed	
ARCHIVEDDATE	DATE		Allowed	
X_COORD	NUMBERPS(38,8)		Allowed	
Y_COORD	NUMBERPS(38,8)		Allowed	
ACCIDENTTYPE	NUMBER		Allowed	
STREETINTERSECTIONID	VARCHAR2(255)		Allowed	
DATEOFACCIDENT	DATE		Allowed	
COLLISIONTYPE	NUMBER		Allowed	CollisionType (Domain)
NUMBEROFVEHICLES	NUMBER		Allowed	Number of vehicle involved in crash
NUMBEROFFATALITIES	NUMBER		Allowed	
NUMBEROFINJURIES	NUMBER		Allowed	
LIGHTCONDITION	VARCHAR2(255)		Allowed	Domain
ROADCONDITION	VARCHAR2(255)		Allowed	Domain
TRAFFICCONDITION	VARCHAR2(255)		Allowed	Domain
WEATHERCONDITION	VARCHAR2(255)		Allowed	Domain
ISFATALITY	VARCHAR2(255)		Allowed	True / False
ISINJURYONLY	VARCHAR2(255)		Allowed	True / False
ISPROPERTYDAMAGE	VARCHAR2(255)		Allowed	True / False
ISHITANDRUN	VARCHAR2(255)		Allowed	True / False
ISPEDESTRIANINVOLVED	VARCHAR2(255)		Allowed	True / False

ISDCPROPERTYDAMAGED	VARCHAR2(255)		Allowed	True / False
ISNONCOLLISION	VARCHAR2(255)		Allowed	True / False
SHAPE	NUMBER		Allowed	

4.58 TRAFFICCABINETFEATURE

Feature Dataset: Event Features
Geometry: Point
Number of columns: 20
Number of indexes: 0
Number of foreign keys: 0
Description: This point feature class represents the traffic cabinet which controls the traffic signals at signalized intersections.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Surrogate primary key identifier for asset
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS type used to locate incident
REFERENCETYPE	VARCHAR2(255)		Allowed	LRS type description
INSERVICEDATE	DATE		Allowed	Date commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status Code (Domain)
CONDITION	NUMBER		Allowed	Asset Condition (Domain)
X_COORD	NUMBERPS(38,8)		Allowed	
Y_COORD	NUMBERPS(38,8)		Allowed	
STREETINTERSECTIONID	VARCHAR2(255)		Allowed	
ACISA	NUMBER		Allowed	ID of traffic cabinet.
INTERSECTIONNAME	VARCHAR2(255)		Allowed	
CONTROLLERID	NUMBER		Allowed	
CABINETTYPE	VARCHAR2(255)		Allowed	
ISMASTER	VARCHAR2(255)		Allowed	True / False – Whether cabinet is master

ISSLAVE	VARCHAR2(255)		Allowed	True / False
GROUPID	NUMBER		Allowed	Identifier of group to which cabinet belongs
SHAPE	NUMBER		Allowed	

4.59 TRAFFICCOUNTSTATIONFEATURE

Feature Dataset: Event Features
Geometry: Point
Number of columns: 15
Number of indexes: 0
Number of foreign keys: 0
Description: This point feature class represents a traffic count station.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Surrogate primary key of asset
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
X_COORD	NUMBERPS(38,8)		Allowed	
Y_COORD	NUMBERPS(38,8)		Allowed	
COUNTSTATIONID	NUMBER		Allowed	Identifier for countstation
COUNTSTATIONTYPE	VARCHAR2(255)		Allowed	Type of countstation
LOCATIONTYPE	VARCHAR2(255)		Allowed	
SHAPE	NUMBER		Allowed	

4.60 TRAFFICLIGHTFEATURE

Feature Dataset: Event Features
Geometry: Point
Number of columns: 20
Number of indexes: 0
Number of foreign keys: 0
Description: This point feature class represents a traffic light.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Surrogate primary key of asset
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
X_COORD	NUMBERPS(38,8)		Allowed	
Y_COORD	NUMBERPS(38,8)		Allowed	
STREETINTERSECTIONID	VARCHAR2(255)		Allowed	
SIGNALTYPE	VARCHAR2(255)		Allowed	
LAMPTYPE	VARCHAR2(255)		Allowed	
LAMPSIZE	VARCHAR2(255)		Allowed	
ACISA	NUMBER		Allowed	
STRUCTUREID	NUMBER		Allowed	
SIGNALDIRECTION	VARCHAR2(255)		Allowed	
CORNER	VARCHAR2(255)		Allowed	
SHAPE	NUMBER		Allowed	

4.61 TRAFFICSIGNFEATURE

Feature Dataset: Event Features
Geometry: Point
Number of columns: 20
Number of indexes: 0
Number of foreign keys: 0
Description: This feature class represents a traffic sign.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Surrogate primary key of asset
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
X_COORD	NUMBERPS(38,8)		Allowed	
Y_COORD	NUMBERPS(38,8)		Allowed	
SIGNTYPE	VARCHAR2(255)		Allowed	
MUCDID	VARCHAR2(255)		Allowed	
SIGNNAME	VARCHAR2(255)		Allowed	
SIGNMESSAGE	VARCHAR2(255)		Allowed	
DATEOFINSTALLATION	DATE		Allowed	
SIGNDIMENSION	VARCHAR2(255)		Allowed	
SIGNMINREFLECTIVITY	NUMBER		Allowed	
STRUCTUREID	NUMBER		Allowed	
SHAPE	NUMBER		Allowed	

4.62 TREEFEATURE

Feature Dataset: Event Features
Geometry: Point
Number of columns: 18
Number of indexes: 0
Number of foreign keys: 0
Description: This point feature represent ornamental trees.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Surrogate primary key of asset
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
X_COORD	NUMBERPS(38,8)		Allowed	
Y_COORD	NUMBERPS(38,8)		Allowed	
TREE_ID	VARCHAR2(255)		Allowed	Tree identifier in Tree database
TBOX_L	NUMBERPS(38,8)		Allowed	Tree box length
TBOX_W	NUMBERPS(38,8)		Allowed	Tree box width
SCI_NM	VARCHAR2(255)		Allowed	Scientific Name of tree
CMMN_NM	VARCHAR2(255)		Allowed	Common name of tree
FACILITY_ID	VARCHAR2(255)		Allowed	
SHAPE	NUMBER		Allowed	

4.63 WHEELCHAIRRAMPFEATURE

Feature Dataset:	Event Features
Geometry:	Point
Number of columns:	12
Number of indexes:	0
Number of foreign keys:	0
Description:	This point feature class represents wheelchair ramps on the roadway.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Surrogate primary key of asset
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	VARCHAR2(30)		Allowed	Status of Asset (See Domains)
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
X_COORD	NUMBERPS(38,8)		Allowed	
Y_COORD	NUMBERPS(38,8)		Allowed	
SHAPE	NUMBER		Allowed	

5 GEODATABASE TABLES

5.1 AADTSECTION

Number of columns: 19
Number of indexes: 0
Number of foreign keys: 0
Description: The AADTSection is a portion of the roadway for which the Average Annual Daily Traffic is sought.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Surrogate primary key of asset
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
DESCRIPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
AADTSECTIONID	NUMBER		Allowed	
COUNTSTATIONID	NUMBER		Allowed	
COUNTDATE	DATE		Allowed	
PERCENTTRUCKS	NUMBERPS(38,8)		Allowed	
AADT	NUMBER		Allowed	Average Annual daily Traffic
AADTACTUALORESTIMATED	VARCHAR2(255)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	Status of Asset (See Domains)
OWNER	NUMBERPS(4,0)		Allowed	

5.2 ALLEY_BASE_EQUIV

Number of columns: 5
Number of indexes: 0
Number of foreign keys: 0
Description: The alley_base_equiv table provides a mechanism for attribute synchronization between an alleysegment at the application level with the segment sharing the same geometry in the base reference level.

Columns	Data type	Field Size	Allow NULLs	Description
EQUIVID	NUMBER		Not allowed	
ALLEYSEGID	NUMBER		Allowed	
ROADWAYSEGID	NUMBER		Allowed	
STATUS	NUMBERPS(4,0)		Allowed	
UPDATETIMESTAMP	DATE		Allowed	

5.3 ASSETINSPECTIONLINE

Number of columns: 14
Number of indexes: 0
Number of foreign keys: 0
Description: This event table represents the activity of inspecting a roadway asset best described by line geometry.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	Unique identifier
RECORDDATE	DATE		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	LRS identifier
REFERENCETYPE	VARCHAR2(255)		Allowed	Describes the LRS type used

LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	Description of the location of the activity
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	Description of the activity
STARTDATE	DATE		Allowed	Actual Start date of the activity
ENDDATE	DATE		Allowed	Actual End date of the activity
STATUS	VARCHAR2(255)		Allowed	Status of the activity
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
ASSETID	NUMBER		Allowed	
INSPECTIONTYPE	NUMBER		Allowed	

5.4 ASSETINSPECTIONPOINT

Number of columns: 13
Number of indexes: 0
Number of foreign keys: 0
Description: This event table represents the activity of inspecting a roadway asset best described by point geometry.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	
RECORDDATE	DATE		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	LRS identifier
REFERENCETYPE	VARCHAR2(255)		Allowed	Describes the LRS type used
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	Description of the location of the activity
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	Description of the activity
STARTDATE	DATE		Allowed	Actual Start date of the activity
ENDDATE	DATE		Allowed	Actual End date of the activity
STATUS	VARCHAR2(255)		Allowed	Status of the activity
POINTMEASURE	NUMBERPS(38,8)		Allowed	
ASSETID	NUMBER		Allowed	
INSPECTIONTYPE	NUMBER		Allowed	

5.5 ASSETLINE

Number of columns: 13
Number of indexes: 0
Number of foreign keys: 0
Description: This event table represents a roadway asset best described by line geometry.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Surrogate primary key of asset
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
DESCRIPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	Status of Asset (See Domains)

5.6 ASSETPOINT

Number of columns: 13
Number of indexes: 0
Number of foreign keys: 0
Description: This event table represents an asset whose geometry is best described as a point.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Surrogate primary key of asset
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
DESCRIPTION	VARCHAR2(255)		Allowed	
POINTMEASURE	NUMBERPS(38,8)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	Status of Asset (See Domains)

5.7 BASEADDRESSRANGE

Number of columns: 17
Number of indexes: 0
Number of foreign keys: 0
Description: This table contains address ranges for base reference segments

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ADDRESSRANGEID	NUMBER		Allowed	Identifier for the address range
ROADWAYSEGID	NUMBER		Allowed	Segment identifier
STREETID	NUMBER		Allowed	Street identifier
REGISTEREDNAME	VARCHAR2(255)		Allowed	
STREETTYPE	VARCHAR2(255)		Allowed	
QUADRANT	VARCHAR2(255)		Allowed	
FROMLEFTADDRESS	NUMBER		Allowed	Low address on left side

TOLEFTADDRESS	NUMBER		Allowed	High address on left side
LEFTZIPCODE	VARCHAR2(255)		Allowed	Zip code on left side of roadway
FROMRIGHTADDRESS	NUMBER		Allowed	Low address on right side
TORIGHTADDRESS	NUMBER		Allowed	High address on right side
RIGHTZIPCODE	VARCHAR2(255)		Allowed	Zip code on right side of roadway
FROMLEFTTHEORITICRANGE	NUMBER		Allowed	
TOLEFTTHEORITICRANGE	NUMBER		Allowed	
FROMRIGHTTHEORITICRANGE	NUMBER		Allowed	
TORIGHTTHEORITICRANGE	NUMBER		Allowed	

5.8 BASEBLOCKFACEADDRANGE

Number of columns: 7
Number of indexes: 0
Number of foreign keys: 0
Description: The BaseBlockfaceAddressRange provides the address range for each block face.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
BLOCKFACEID	NUMBER		Allowed	Identifier for blockface
SIDE	NUMBERPS(4,0)		Allowed	Side of street left or right
STREETID	NUMBER		Allowed	Street identifier
FROMADDRESS	NUMBER		Allowed	Low block face address
TOADDRESS	NUMBER		Allowed	High block face address
ZIPCODE	VARCHAR2(255)		Allowed	

5.9 BRIDGELINE

Number of columns: 21
Number of indexes: 0
Number of foreign keys: 0
Description: The Bridgeline table stores information on the bridges on the roadway network.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
DESCRIPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
BRIDGENAME	VARCHAR2(255)		Allowed	Name of Bridge in PONTIS system
BRKEY	VARCHAR2(15)		Allowed	
YEARRECON	DATE		Allowed	
YEARBUILT	DATE		Allowed	
LENGTH	NUMBERPS(38,8)		Allowed	Linear Length of Asset
MAXSPAN	NUMBERPS(38,8)		Allowed	
BRIDGE_ID	VARCHAR2(30)		Allowed	
STRUCTNAME	VARCHAR2(50)		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	Status of Asset (See Domains)

5.10 BRIDGEPOINT

Number of columns: 21
Number of indexes: 0
Number of foreign keys: 0
Description: The BridgePoint table stores information about the bridges on the roadways.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used to locate Asset
REFERENCETYPE	VARCHAR2(255)		Allowed	Type of LRS
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
INSERVICEDATE	DATE		Allowed	Date Asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date Asset was taken out of service
DESCRIPTION	VARCHAR2(255)		Allowed	Description of Asset
POINTMEASURE	NUMBERPS(38,8)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	
BRIDGENAME	VARCHAR2(255)		Allowed	Name of bridge in the PONTIS system
BRKEY	VARCHAR2(15)		Allowed	PONTIS attribute
YEARRECON	DATE		Allowed	
YEARBUILT	DATE		Allowed	
LENGTH	NUMBERPS(38,8)		Allowed	
MAXSPAN	NUMBERPS(38,8)		Allowed	
BRIDGE_ID	VARCHAR2(30)		Allowed	
STRUCTNAME	VARCHAR2(50)		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	Current Status (See Domains)

5.11 CCTVCAMERA

Number of columns: 17
Number of indexes: 0
Number of foreign keys: 0
Description: The CCTVcamera table stores information relating to the Closed Circuit TV cameras monitoring traffic around the District.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(50)		Allowed	
REFERENCEID	VARCHAR2(50)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(50)		Allowed	Description of LRS used
OWNER	NUMBERPS(4,0)		Allowed	Entity responsible for maintenance
CONDITION	NUMBERPS(4,0)		Allowed	Condition of Asset (See Domains)
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	Status of Asset (See Domains)
DESCRIPTION	VARCHAR2(50)		Allowed	
POINTMEASURE	NUMBERPS(10,5)		Allowed	
LINEAROFFSET	NUMBERPS(10,5)		Allowed	
ACISA	NUMBER		Allowed	Unique identifier for related traffic cabinet
STREETINTERSECTIONID	VARCHAR2(50)		Allowed	
INTERSECTIONNAME	VARCHAR2(50)		Allowed	
POLEID	NUMBER		Allowed	

5.12 CONSTRUCTIONLINE

Number of columns: 14
Number of indexes: 0
Number of foreign keys: 0
Description: This table contains information on construction activity within the district.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	Surrogate primary key to identify activity
RECORDDATE	DATE		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	LRS identifier
REFERENCETYPE	VARCHAR2(255)		Allowed	Describes the LRS type used
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	Description of the location of the activity
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	Description of the activity
STARTDATE	DATE		Allowed	Actual Start date of the activity
ENDDATE	DATE		Allowed	Actual End date of the activity
STATUS	VARCHAR2(255)		Allowed	Status of the activity
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
PROJECTID	VARCHAR2(255)		Allowed	Identifier for Activity
CONTRACTNUMBER	NUMBER		Allowed	

5.13 CONSTRUCTIONPOINT

Number of columns: 13
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on construction activity witin the district.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	Surrogate primary key identifier for activity
RECORDDATE	DATE		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	Describes the type of LRS used
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	Description of the location of the activity
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	Description of the activity
STARTDATE	DATE		Allowed	Actual Start date of the activity
ENDDATE	DATE		Allowed	Actual End date of the activity
STATUS	VARCHAR2(255)		Allowed	Status of the activity
POINTMEASURE	NUMBERPS(38,8)		Allowed	
PROJECTID	VARCHAR2(255)		Allowed	
CONTRACTNUMBER	NUMBER		Allowed	

5.14 CURBLINE

Number of columns: 20
Number of indexes: 0
Number of foreign keys: 0
Description: This table contains information on curbs within the district.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
CONDITION	NUMBER		Allowed	
INSERVICEDATE	DATE		Allowed	

OUTOFSERVICEDATE	DATE		Allowed	
DESCRIPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
SIDEOFROADWAY	VARCHAR2(255)		Allowed	
CURBLENGTH	NUMBERPS(38,8)		Allowed	
CURBLENGTHACTUAL	VARCHAR2(5)		Allowed	
CURBTYPE	VARCHAR2(2)		Allowed	
GUTTERTYPE	VARCHAR2(2)		Allowed	Curb gutter type
CURBYEAR	DATE		Allowed	
CURBLOCATION	VARCHAR2(255)		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	Entity responsible for maintenance
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	

5.15 DRIVEWAY_BASE_EQUIV

Number of columns: 5
Number of indexes: 0
Number of foreign keys: 0
Description: The driveway_base_equiv table provides a mechanism for synchronizing attributes between the drive segment and its shared geometry in the base reference layer.

Columns	Data type	Field Size	Allow NULLs	Description
EQUIVID	NUMBER		Not allowed	
DRIVEWAYSEGID	NUMBER		Allowed	
ROADWAYSEGID	NUMBER		Allowed	
STATUS	NUMBERPS(4,0)		Allowed	
UPDATETIMESTAMP	DATE		Allowed	

5.16 FUNCTIONALCLASS

Number of columns: 18
Number of indexes: 0
Number of foreign keys: 0
Description: The function class table stores information on the roadway fuctional class.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Identifer for asset
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
DESCRIPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
PAVEMENTLINEID	VARCHAR2(255)		Allowed	
FUNCTIONALCLASS	NUMBER		Allowed	Functional Class Code (See Domains)
FUNCTIONALCLASSDESCRIPTION	VARCHAR2(255)		Allowed	
FROMSTREETINTERSECTIONID	VARCHAR2(255)		Allowed	Bounding Intersection ID (Start)
TOSTREETINTERSECTIONID	VARCHAR2(255)		Allowed	Bounding Intersection ID (End)
OWNER	NUMBERPS(4,0)		Allowed	Entitiy responsible for maintenance
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	Status of Asset (See Domains)

5.17 GUARDRAIL

Number of columns: 17
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on guardrails

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
DESCRIPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
GUARDRAILTYPE	VARCHAR2(255)		Allowed	Type of Guardrail
LENGTH	NUMBERPS(38,8)		Allowed	Linear Length of Asset
MATERIALOFCONSTRUCTION	VARCHAR2(255)		Allowed	
DATEINSTALLED	DATE		Allowed	Date Guardrail was installed
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	Status of Asset (See Domains)

5.18 HPMSSECTION

Number of columns: 20
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on the Highway Performance Monitoring System (HPMS) study sections of the district roadways.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
DESCRIPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
HPMSID	VARCHAR2(255)		Allowed	
COUNTSTATIONID	NUMBER		Allowed	ID of counstation from where measurements are made
SAMPLEYEAR	DATE		Allowed	HPMS record year
SECTIONTYPE	VARCHAR2(255)		Allowed	Type of HPMS Section
DONUT_AADT	VARCHAR2(255)		Allowed	AADT for DONUT sample (Not applicable to DCDOT)
STD_AADT	VARCHAR2(255)		Allowed	Standard sample AADT
AADT	NUMBER		Allowed	Average Annual Daily Traffic (AADT) of roadway section
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	Status of Asset (See Domains)

5.19 IMPACTATTENUATOR

Number of columns: 16
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on impact attenuators within the district.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
DESCRIPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
ATTENUATORTYPE	VARCHAR2(255)		Allowed	
MATERIALOFCONSTRUCTION	VARCHAR2(255)		Allowed	
DATEINSTALLED	DATE		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	Status of Asset (See Domains)

5.20 INTERSECTION_BASE_EQUIV

Number of columns: 5
Number of indexes: 0
Number of foreign keys: 0
Description: This table provide an attribute synchronization mechanism for the StreetIntersection and the roadway junction tables.

Columns	Data type	Field Size	Allow NULLs	Description
EQUIVID	NUMBER		Not allowed	
STREETJUNCTIONID	NUMBER		Allowed	
INTERSECTIONID	NUMBER		Allowed	
STATUS	NUMBERPS(4,0)		Allowed	
UPDATETIMESTAMP	DATE		Allowed	

5.21 LANE

Number of columns: 13
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on roadway lanes.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
LANEID	NUMBER		Allowed	
STREETSEGID	NUMBER		Allowed	
TURNDIRECTION	NUMBER		Allowed	Lane turn direction at intersection
TRAVELDIRECTION	VARCHAR2(255)		Allowed	
BEGINMEASURE	NUMBERPS(38,8)		Allowed	
ENDMEASURE	NUMBERPS(38,8)		Allowed	
LANETYPE	VARCHAR2(255)		Allowed	
LANESEQUENCE	NUMBER		Allowed	
LANEWIDTH	NUMBERPS(38,8)		Allowed	
LANEOPENSTATUS	NUMBERPS(4,0)		Allowed	
UPDATETIMESTAMP	DATE		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	Status Code (Domain)

5.22 LONGITUDINALBARRIER

Number of columns: 17
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on longitudinal barriers on the network

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
DESCRIPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
BARRIERTYPE	VARCHAR2(255)		Allowed	
LENGTHOFSECTION	NUMBERPS(38,8)		Allowed	
MATERIALOFCONSTRUCTION	VARCHAR2(255)		Allowed	
DATEINSTALLED	DATE		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	Status of Asset (See Domains)

5.23 NHSROUTESECTION

Number of columns: 17
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on National Highway System (NHS) route sections.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS Reference type
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS Type
CONDITION	NUMBER		Allowed	
INSERVICEDATE	DATE		Allowed	
OUTOFSERVICEDATE	DATE		Allowed	
DESCRIPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
PAVEMENTLINEID	VARCHAR2(255)		Allowed	
NHSROUTETYPE	VARCHAR2(255)		Allowed	
FROMSTREETINTERSECTIONID	VARCHAR2(255)		Allowed	
TOSTREETINTERSECTIONID	VARCHAR2(255)		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	

5.24 PARKINGMETER

Number of columns: 17
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on the parking meters on the street network.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	Surrogate primary key for asset
ASSETNAME	VARCHAR2(255)		Allowed	Name of asset
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS type

REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS type
CONDITION	NUMBER		Allowed	AssetCondition (Domain)
INSERVICEDATE	DATE		Allowed	Date commisioned
OUTOFSERVICEDATE	DATE		Allowed	Date taken out of service
DESCRIPTION	VARCHAR2(255)		Allowed	
POINTMEASURE	NUMBERPS(38,8)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	
PARKINGMETERNO	VARCHAR2(255)		Allowed	
PARKINGMETERTYPE	VARCHAR2(255)		Allowed	Registered asset number for parking meter
HOURSOFOPERATION	VARCHAR2(255)		Allowed	Designated hours of operation for meter
LASTMAINTAINEDDATE	DATE		Allowed	Date of last maintenance
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	Status Code (Domain)

5.25 PARKINGRESTRICTION

Number of columns: 20
Number of indexes: 0
Number of foreign keys: 0
Description: This table contains information on parking restrictions within the network.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
DESCRIPTION	VARCHAR2(255)		Allowed	

FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
RESTRICTIONID	NUMBER		Allowed	Identifier for parking restriction
RESTRICTIONTYPE	VARCHAR2(255)		Allowed	Description of restriction
REGULATIONNO	VARCHAR2(255)		Allowed	Government regulation creating restriction
REGULATIONDESCRIPTION	VARCHAR2(255)		Allowed	Regualtion description
REGULATIONYEAR	DATE		Allowed	Year of regulation
STREETNAME	VARCHAR2(255)		Allowed	
BLOCKNO	VARCHAR2(255)		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	Status of Asset (See Domains)

5.26 PAVEMENTINSPECTION

Number of columns: 15
Number of indexes: 0
Number of foreign keys: 0
Description: This table contains information on pavement inspection activity

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	
RECORDDATE	DATE		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	LRS identifier
REFERENCETYPE	VARCHAR2(255)		Allowed	Describes the LRS type used
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	Description of the location of the activity
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	Description of the activity
STARTDATE	DATE		Allowed	Actual Start date of the activity
ENDDATE	DATE		Allowed	Actual End date of the activity
STATUS	VARCHAR2(255)		Allowed	Status of the activity
FROMMEASURE	NUMBERPS(38,8)		Allowed	

TOMEASURE	NUMBERPS(38,8)		Allowed	Pavement section identifier
INSPECTEDBY	VARCHAR2(255)		Allowed	Officer inspecting
INSPECTIONDATE	DATE		Allowed	
PCI	NUMBER		Allowed	

5.27 PAVEMENTLAYER

Number of columns: 18
Number of indexes: 0
Number of foreign keys: 0
Description: This atble stores information on the composition of pavement layers.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	Identifier for LRS used
REFERENCETYPE	VARCHAR2(255)		Allowed	Description of LRS used
CONDITION	NUMBER		Allowed	Condition of Asset (See Domains)
INSERVICEDATE	DATE		Allowed	Date asset was commisioned into service
OUTOFSERVICEDATE	DATE		Allowed	Date asset was taken out of service
DESCRIPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
PAVEMENTLINEID	VARCHAR2(255)		Allowed	Identifier for section of pavement
LAYERNUMBER	NUMBER		Allowed	Layer Number (Top layer = 1)
LAYERTHICKNESS	NUMBERPS(38,8)		Allowed	
LAYERMATERIAL	VARCHAR2(255)		Allowed	
DATEINSTALLED	DATE		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	Status of Asset (See Domains)

5.28 PAVEMENTMARKINGLINE

Number of columns: 18
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on pavement markings whose geometry can be represented by a line.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
CONDITION	NUMBER		Allowed	
INSERVICEDATE	DATE		Allowed	
OUTOFSERVICEDATE	DATE		Allowed	
DESCRIPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
TYPEOFMARKING	VARCHAR2(255)		Allowed	
MATERIALOFMARKING	VARCHAR2(255)		Allowed	
LENGTHOFMARKING	NUMBERPS(38,8)		Allowed	
DATEAPPLIED	DATE		Allowed	
TEXTOFMARKING	VARCHAR2(255)		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	

5.29 PAVEMENTMARKINGPOINT

Number of columns: 18
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on pavement markings whose geometry can be represented by a point.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
CONDITION	NUMBER		Allowed	
INSERVICEDATE	DATE		Allowed	
OUTOFSERVICEDATE	DATE		Allowed	
DESCRIPTION	VARCHAR2(255)		Allowed	
POINTMEASURE	NUMBERPS(38,8)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	
TYPEOFMARKING	VARCHAR2(255)		Allowed	
MATERIALOFMARKING	VARCHAR2(255)		Allowed	
LENGTHOFMARKING	NUMBERPS(38,8)		Allowed	
DATEAPPLIED	DATE		Allowed	
TEXTOFMARKING	VARCHAR2(255)		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	

5.30 PAVEMENTROUGHNESSSECTION

Number of columns: 16
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on the roughness of pavement sections.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
CONDITION	NUMBER		Allowed	
INSERVICEDATE	DATE		Allowed	
OUTOFSERVICEDATE	DATE		Allowed	
DESCRIPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
LANENUMBER	NUMBER		Allowed	
TESTDATE	DATE		Allowed	
IRI	NUMBER		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	

5.31 PAVEMENTROUGHNESSTESTING

Number of columns: 16
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on pavement roughness testing activity.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	
RECORDDATE	DATE		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	
STARTDATE	DATE		Allowed	
ENDDATE	DATE		Allowed	
STATUS	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
LANENUMBER	NUMBER		Allowed	
TESTDATE	DATE		Allowed	
TESTEDBY	VARCHAR2(255)		Allowed	
IRI	NUMBER		Allowed	

5.32 PAVEMENTSKIDSECTION

Number of columns: 17
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on the skid (value) of a section of pavement.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	

REFERENCETYPE	VARCHAR2(255)		Allowed	
CONDITION	NUMBER		Allowed	
INSERVICEDATE	DATE		Allowed	
OUTOFSERVICEDATE	DATE		Allowed	
DESCRIPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
LANENUMBER	NUMBER		Allowed	
DIRECTION	VARCHAR2(255)		Allowed	
TESTDATE	DATE		Allowed	
SKID	NUMBERPS(38,8)		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	

5.33 PAVEMENTSKIDTESTING

Number of columns: 17
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on pavement skid testing activity.

Columns	Data type	Field Size	Allow NULLs	Value/Range
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	
RECORDDATE	DATE		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	
STARTDATE	DATE		Allowed	

ENDDATE	DATE		Allowed	
STATUS	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
LANENUMBER	NUMBER		Allowed	
DIRECTION	VARCHAR2(255)		Allowed	
TESTDATE	DATE		Allowed	
TESTEDBY	VARCHAR2(255)		Allowed	
SKID	NUMBERPS(38,8)		Allowed	

5.34 PAVEMENTTYPESECTION

Number of columns: 18
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on sections of pavement of the same type.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
CONDITION	NUMBER		Allowed	
INSERVICEDATE	DATE		Allowed	
OUTOFSERVICEDATE	DATE		Allowed	
DESCRIPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
PAVEMENTLINEID	VARCHAR2(255)		Allowed	

PAVEMENTTYPE	VARCHAR2(255)		Allowed	
NUMBEROFLANES	NUMBER		Allowed	
NUMBEROFLAYERS	NUMBER		Allowed	
PAVEMENTWIDTH	NUMBERPS(38,8)		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	

5.35 PERMITLINE

Number of columns: 14
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on permitting activity best described by line geometry.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	
RECORDDATE	DATE		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	
STARTDATE	DATE		Allowed	
ENDDATE	DATE		Allowed	
STATUS	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
PERMITID	NUMBER		Allowed	
PERMITTYPE	NUMBER		Allowed	

5.36 PERMITPOINT

Number of columns: 13
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on permitting activity best described by point geometry.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ACTIVITYID	NUMBER		Allowed	
RECORDDATE	DATE		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	
ACTIVITYDESCRIPTION	VARCHAR2(255)		Allowed	
STARTDATE	DATE		Allowed	
ENDDATE	DATE		Allowed	
STATUS	VARCHAR2(255)		Allowed	
POINTMEASURE	NUMBERPS(38,8)		Allowed	
PERMITID	NUMBER		Allowed	
PERMITTYPE	NUMBER		Allowed	

5.37 RAMP_BASE_EQUIV

Number of columns: 5
Number of indexes: 0
Number of foreign keys: 0
Description: This table provides the mechanism for synchronizing attributes between the ramp segment and its shared geometry in the base reference layer.

Columns	Data type	Field Size	Allow NULLs	Description
EQUIVID	NUMBER		Not allowed	
RAMPSEGID	NUMBER		Allowed	
ROADWAYSEGID	NUMBER		Allowed	
STATUS	NUMBERPS(4,0)		Allowed	
UPDATETIMESTAMP	DATE		Allowed	

5.38 ROADWAYJUNCTION_EQUIV

Number of columns: 8
Number of indexes: 0
Number of foreign keys: 0
Description: This table provides the mechanism for synchronizing node-link attributes in the SSD model during maintenance and editing.

Columns	Data type	Field Size	Allow NULLs	Description
EQUIVID	NUMBER		Not allowed	
NODEID	NUMBER		Allowed	
INTERSECTIONID	NUMBER		Allowed	
INTERSECTTRANSSEGID	NUMBER		Allowed	
INTERSECTSEGMEASURE	NUMBERPS(38,8)		Allowed	
ISPRIMARY	NUMBERPS(4,0)		Allowed	
STATUS	NUMBERPS(4,0)		Allowed	
UPDATETIMESTAMP	DATE		Allowed	

5.39 ROUTING_BASE_EQUIV

Number of columns: 5
Number of indexes: 0
Number of foreign keys: 0
Description: This table provides a synchronization mechanism between the routing segment and its shared geometry in the base reference layer.

Columns	Data type	Field Size	Allow NULLs	Description
EQUIVID	NUMBER		Not allowed	
ROUTINGSEGID	NUMBER		Allowed	
ROADWAYSEGID	NUMBER		Allowed	
STATUS	NUMBERPS(4,0)		Allowed	
UPDATETIMESTAMP	DATE		Allowed	

5.40 ROUTINGTURN

Number of columns: 11
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on the permissible turns in the routing reference network.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
TURNID	NUMBER		Allowed	
NODEID	NUMBER		Allowed	
FROMSEGID	NUMBER		Allowed	
TOSEGID	NUMBER		Allowed	
RESTRICTIONTYPE	VARCHAR2(255)		Allowed	
UTURNSIDE	VARCHAR2(255)		Allowed	

DELAY	NUMBER		Allowed	
SKIP	VARCHAR2(255)		Allowed	
COMMENTS	VARCHAR2(255)		Allowed	
CONTROLTYPE	NUMBER		Allowed	

5.41 SERVICEREQUESTLINE

Number of columns: 15
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on citizen's call for service incidents that can best be described by line geometry.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
INCIDENTID	NUMBER		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
INCIDENTTIMESTAMP	DATE		Allowed	
STARTTIMESTAMP	DATE		Allowed	
ENDTIMESTAMP	DATE		Allowed	
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	
INCIDENTDESCIRPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
SERVICEREQUESTTYPE	NUMBER		Allowed	
SERVICEREQUESTSOURCE	VARCHAR2(255)		Allowed	
SOURCEID	NUMBER		Allowed	

5.42 SERVICEREQUESTPOINT

Number of columns: 14
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on citizen's call for service incidents that can best be described by point geometry.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
INCIDENTID	NUMBER		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
INCIDENTTIMESTAMP	DATE		Allowed	
STARTTIMESTAMP	DATE		Allowed	
ENDTIMESTAMP	DATE		Allowed	
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	
INCIDENTDESCIRPTION	VARCHAR2(255)		Allowed	
POINTMEASURE	NUMBERPS(38,8)		Allowed	
SERVICEREQUESTPOINTTYPE	NUMBER		Allowed	
SERVICEREQUESTSOURCE	VARCHAR2(255)		Allowed	
SOURCEID	NUMBER		Allowed	

5.43 SERVICEROAD_BASE_EQUIV

Number of columns: 5
Number of indexes: 0
Number of foreign keys: 0
Description: This table provides the mechanism for synchronization between service road segments and their shared geometry in the base reference layer.

Columns	Data type	Field Size	Allow NULLs	Description
EQUIVID	NUMBER		Not allowed	
SERVICEROADSEGID	NUMBER		Allowed	
ROADWAYSEGID	NUMBER		Allowed	
STATUS	NUMBERPS(4,0)		Allowed	
UPDATETIMESTAMP	DATE		Allowed	

5.44 SIDEWALK

Number of columns: 14
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on sidewalks within the district.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
CONDITION	NUMBER		Allowed	
INSERVICEDATE	DATE		Allowed	

OUTOFSERVICEDATE	DATE		Allowed	
DESCRIPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
SIDEWALKWIDTH	NUMBERPS(38,8)		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	

5.45 SIGNALIZEDINTERSECTION

Number of columns: 5
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on signalized (where traffic cabinets are installed) intersections.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
STREETINTERSECTIONID	VARCHAR2(50)		Allowed	
INTERSECTIONNAME	VARCHAR2(50)		Allowed	
NUMBEROFTRAFFCCABINETS	NUMBERPS(4,0)		Allowed	
NUMBEROFTRAFFICSIGNALS	NUMBERPS(4,0)		Allowed	

5.46 STREET_BASE_EQUIV

Number of columns: 5
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information that provides a mechanism for synchronization of attributes between the street segment and roadway segment during editing and updates.

Columns	Data type	Field Size	Allow NULLs	Description
EQUIVID	NUMBER		Not allowed	
STREETSEGID	NUMBER		Allowed	
ROADWAYSEGID	NUMBER		Allowed	
STATUS	NUMBERPS(4,0)		Allowed	
UPDATETIMESTAMP	DATE		Allowed	

5.47 STREETCLOSURELINE

Number of columns: 13
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on street closure incidents that are best described with line geometry.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
INCIDENTID	NUMBER		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
INCIDENTTIMESTAMP	DATE		Allowed	
STARTTIMESTAMP	DATE		Allowed	
ENDTIMESTAMP	DATE		Allowed	
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	
INCIDENTDESCIRPTION	VARCHAR2(255)		Allowed	
FROMMEASURE	NUMBERPS(38,8)		Allowed	
TOMEASURE	NUMBERPS(38,8)		Allowed	
CLOSURETYPE	NUMBER		Allowed	

5.48 STREETCLOSUREPOINT

Number of columns: 12
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on street closure incidents that are best described with point geometry.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
INCIDENTID	NUMBER		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
INCIDENTTIMESTAMP	DATE		Allowed	
STARTTIMESTAMP	DATE		Allowed	
ENDTIMESTAMP	DATE		Allowed	
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	
INCIDENTDESCIRPTION	VARCHAR2(255)		Allowed	
POINTMEASURE	NUMBERPS(38,8)		Allowed	
CLOSURETYPE	NUMBER		Allowed	

5.49 STREETINTERSECTION_EQUIV

Number of columns: 9
Number of indexes: 0
Number of foreign keys: 0
Description: This table provides the mechanism for synchronizing node-link attributes in the SSD model during maintenance and editing.

Columns	Data type	Field Size	Allow NULLs	Description
EQUIVID	NUMBER		Not allowed	
STREETJUNCTIONID	NUMBER		Allowed	
INTERSECTSTREETSEGID	NUMBER		Allowed	
INTERSECTSTREETMEASURE	NUMBERPS(38,8)		Allowed	
ISPRIMARY	NUMBERPS(4,0)		Allowed	
INTERSECTROUTEID	VARCHAR2(255)		Allowed	
INTERSECTROUTEMEASURE	NUMBERPS(38,8)		Allowed	
STATUS	NUMBERPS(4,0)		Allowed	
UPDATETIMESTAMP	DATE		Allowed	

5.50 SUPPORTSTRUCTURE

Number of columns: 18
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on supports (poles) for street lights, traffic signals, traffic signs etc.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
CONDITION	NUMBER		Allowed	
INSERVICEDATE	DATE		Allowed	
OUTOFSERVICEDATE	DATE		Allowed	
DESCRIPTION	VARCHAR2(255)		Allowed	
POINTMEASURE	NUMBERPS(38,8)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	

STRUCTURETYPE	NUMBER		Allowed	
MATERIALOFCONSTRUCTION	NUMBER		Allowed	
OWNERSHIP	VARCHAR2(255)		Allowed	
T_BASECONDITION	NUMBER		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	
STRUCTUREID	NUMBERPS(9,0)		Allowed	

5.51 TRAFFICACCIDENT

Number of columns: 29
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on traffic accident incidents.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
INCIDENTID	NUMBER		Allowed	
REFERENCEID	VARCHAR2(20)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
INCIDENTTIMESTAMP	DATE		Allowed	
STARTTIMESTAMP	DATE		Allowed	
ENDTIMESTAMP	DATE		Allowed	
LOCATIONDESCRIPTION	VARCHAR2(255)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	
INCIDENTDESCIRPTION	VARCHAR2(255)		Allowed	
POINTMEASURE	NUMBERPS(38,8)		Allowed	
ACCIDENTTYPE	NUMBER		Allowed	
STREETINTERSECTIONID	VARCHAR2(255)		Allowed	
DATEOFACCIDENT	DATE		Allowed	
COLLISIONTYPE	NUMBER		Allowed	

NUMBEROFVEHICLES	NUMBER		Allowed	
NUMBEROFFATALITIES	NUMBER		Allowed	
NUMBEROFINJURIES	NUMBER		Allowed	
LIGHTCONDITION	VARCHAR2(255)		Allowed	
ROADCONDITION	VARCHAR2(255)		Allowed	
TRAFFICCONDITION	VARCHAR2(255)		Allowed	
WEATHERCONDITION	VARCHAR2(255)		Allowed	
ISFATALITY	VARCHAR2(255)		Allowed	
ISINJURYONLY	VARCHAR2(255)		Allowed	
ISPROPERTYDAMAGE	VARCHAR2(255)		Allowed	
ISHITANDRUN	VARCHAR2(255)		Allowed	
ISPEDESTRIANINVOLVED	VARCHAR2(255)		Allowed	
ISDCPROPERTYDAMAGED	VARCHAR2(255)		Allowed	
ISNONCOLLISION	VARCHAR2(255)		Allowed	

5.52 TRAFFICCABINET

Number of columns: 21
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on traffic cabinets.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
CONDITION	NUMBER		Allowed	
INSERVICEDATE	DATE		Allowed	
OUTOFSERVICEDATE	DATE		Allowed	

DESCRIPTION	VARCHAR2(255)		Allowed	
POINTMEASURE	NUMBERPS(38,8)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	
ACISA	NUMBER		Allowed	
STREETINTERSECTIONID	VARCHAR2(255)		Allowed	
INTERSECTIONNAME	VARCHAR2(255)		Allowed	
CONTROLLERID	NUMBER		Allowed	
CABINETTYPE	VARCHAR2(255)		Allowed	
ISMASTER	VARCHAR2(255)		Allowed	
ISSLAVE	VARCHAR2(255)		Allowed	
GROUPID	NUMBER		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	

5.53 TRAFFICCOUNTER

Number of columns: 4
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on traffic counters.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
COUNTERID	NUMBER		Allowed	
COUNTSTATIONID	NUMBER		Allowed	
SENSORTYPE	VARCHAR2(50)		Allowed	

5.54 TRAFFICCOUNTSTATION

Number of columns: 16
Number of indexes: 0
Number of foreign keys: 0
Description: This table contains information on traffic count stations within the district.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
CONDITION	NUMBER		Allowed	
INSERVICEDATE	DATE		Allowed	
OUTOFSERVICEDATE	DATE		Allowed	
DESCRIPTION	VARCHAR2(255)		Allowed	
POINTMEASURE	NUMBERPS(38,8)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	
COUNTSTATIONID	NUMBER		Allowed	
COUNTSTATIONTYPE	VARCHAR2(255)		Allowed	
LOCATIONTYPE	VARCHAR2(255)		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	

5.55 TRAFFICLIGHT

Number of columns: 21
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on traffic lights (signals).

Columns	Data type	Field Size	Allow NULLs	Value/Range
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
CONDITION	NUMBER		Allowed	
INSERVICEDATE	DATE		Allowed	
OUTOFSERVICEDATE	DATE		Allowed	
DESCRIPTION	VARCHAR2(255)		Allowed	
POINTMEASURE	NUMBERPS(38,8)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	
SIGNALTYPE	VARCHAR2(255)		Allowed	
LAMPTYPE	VARCHAR2(255)		Allowed	
LAMPSIZE	VARCHAR2(255)		Allowed	
ACISA	NUMBER		Allowed	
POLEID	NUMBER		Allowed	
SIGNALDIRECTION	VARCHAR2(255)		Allowed	
CORNER	VARCHAR2(255)		Allowed	
STREETINTERSECTIONID	VARCHAR2(255)		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	

5.56 TRAFFICSIGN

Number of columns: 21
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on traffic signs.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
CONDITION	NUMBER		Allowed	
INSERVICEDATE	DATE		Allowed	
OUTOFSERVICEDATE	DATE		Allowed	
DESCRIPTION	VARCHAR2(255)		Allowed	
POINTMEASURE	NUMBERPS(38,8)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	
SIGNTYPE	VARCHAR2(255)		Allowed	
MUCDID	VARCHAR2(255)		Allowed	
SIGNNAME	VARCHAR2(255)		Allowed	
SIGNMESSAGE	VARCHAR2(255)		Allowed	
DATEOFINSTALLATION	DATE		Allowed	
SIGNDIMENSION	VARCHAR2(255)		Allowed	
SIGNMINREFLECTIVITY	NUMBER		Allowed	
POLEID	NUMBER		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	

5.57 TREES

Number of columns: 19
Number of indexes: 0
Number of foreign keys: 0
Description: Ornamental tree information is stored in this table.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	
CONDITION	NUMBER		Allowed	
INSERVICEDATE	DATE		Allowed	
OUTOFSERVICEDATE	DATE		Allowed	
DESCRIPTION	VARCHAR2(255)		Allowed	
POINTMEASURE	NUMBERPS(38,8)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	
TREE_ID	VARCHAR2(255)		Allowed	
TBOX_L	NUMBERPS(38,8)		Allowed	
TBOX_W	NUMBERPS(38,8)		Allowed	
SCI_NM	VARCHAR2(255)		Allowed	
CMMN_NM	VARCHAR2(255)		Allowed	
FACILITY_ID	VARCHAR2(255)		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	

5.58 TURNRESTRICTION

Number of columns: 9
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on turn restrictions on the district roadways.

Columns	Data type	Field Size	Allow NULLs	Description
OBJECTID	NUMBER		Not allowed	
RESTRICTIONTYPE	VARCHAR2(255)		Allowed	
REGULATIONNO	VARCHAR2(255)		Allowed	
REGULATIONDESCRIPTION	VARCHAR2(255)		Allowed	
REGULATIONYEAR	DATE		Allowed	
STREETINTERSECTIONID	VARCHAR2(255)		Allowed	
BLOCKNO	VARCHAR2(255)		Allowed	
TURNID	VARCHAR2(255)		Allowed	
INTERSECTIONID	NUMBER		Allowed	

5.59 WHEELCHAIRRAMP

Number of columns: 13
Number of indexes: 0
Number of foreign keys: 0
Description: This table stores information on wheelchair ramps.

Columns	Data type	Field Size	Allow NULLs	Value/Range
OBJECTID	NUMBER		Not allowed	
ASSETID	NUMBER		Allowed	
ASSETNAME	VARCHAR2(255)		Allowed	
REFERENCEID	VARCHAR2(30)		Allowed	
REFERENCETYPE	VARCHAR2(255)		Allowed	

CONDITION	NUMBER		Allowed	
INSERVICEDATE	DATE		Allowed	
OUTOFSERVICEDATE	DATE		Allowed	
DESCRIPTION	VARCHAR2(255)		Allowed	
POINTMEASURE	NUMBERPS(38,8)		Allowed	
LINEAROFFSET	NUMBERPS(38,8)		Allowed	
OWNER	NUMBERPS(4,0)		Allowed	
LIFECYCLESTATUS	NUMBERPS(4,0)		Allowed	

6 DATABASE TRIGGERS AND SEQUENCES

The triggers and sequences whose creation scripts (DDL) are listed are used to create surrogate primary keys on the respective tables when a new record is inserted or when a record is updated.

6.1 ALLEY_BASE_EQUIV

Trigger name – AlleyBaseequiv_bur
Sequence name – Alleybaseequivid_s

Object DDL:

```
CREATE SEQUENCE Alleybaseequivid_s Increment by 1 Start with 8720;

CREATE OR REPLACE TRIGGER AlleyBaseequiv_bur BEFORE INSERT ON ssddba.Alley_Base_Equiv
FOR EACH ROW

DECLARE
 v_equiv NUMBER;

 BEGIN

   IF :new.Equivid IS NULL THEN

     SELECT Alleybaseequivid_s.nextval
       INTO v_equiv
         FROM dual;

       :new.Equivid:=v_equiv;

   END IF;

       :new.updatetimestamp :=SYSDATE;


 END;
```

6.2 ALLEYSEGMENT

Trigger name – AlleySegID_bur
Sequence name – AlleySegID_s

Object DDL:

```
CREATE SEQUENCE AlleySegID_s Increment by 1 Start with 8688;

CREATE OR REPLACE TRIGGER AlleySegID_bur BEFORE INSERT OR UPDATE ON ssddba.AlleySegment
FOR EACH ROW

DECLARE
 v_alley_segid NUMBER(6);

 BEGIN

   IF :new.alleysegid IS NULL THEN

     SELECT alleySegID_s.nextval
       INTO v_alley_segid
         FROM dual;

       :new.alleysegid:=v_alley_segid;

   END IF;

       :new.updatetimestamp :=SYSDATE;


  END;

/

Show errors
```

6.3 DRIVESEGMENT

Trigger name – drivesegment_bur
Sequence name – drivewaysegid_s

Object DDL:

```
CREATE sequence drivewaysegid_s START WITH 2580 INCREMENT BY 1;


CREATE OR REPLACE TRIGGER drivesegment_bur BEFORE INSERT OR UPDATE ON ssddba.drivesegment
FOR EACH ROW

DECLARE
 v_drive_segid NUMBER(8);

 BEGIN
  IF :new.DRIVEWAYSEGID IS NULL THEN

     SELECT drivewaysegid_s.NEXTVAL
       INTO v_drive_segid
              FROM dual;

       :new.DRIVEWAYSEGID:=v_drive_segid;

  END IF;


       :new.updatetimestamp :=SYSDATE;


  END;
```

6.4 DRIVEWAY_BASE_EQUIV

Trigger name – drivewaybaseequiv_bur
Sequence name – drivewaybaseequivid_s

Object DDL:

```
CREATE SEQUENCE drivewaybaseequivid_s START WITH 2583 INCREMENT BY 1;

CREATE OR REPLACE TRIGGER drivewaybaseequiv_bur BEFORE INSERT OR UPDATE ON
ssddba.driveway_base_equiv
FOR EACH ROW

DECLARE
v_equivid NUMBER(8);

BEGIN
  IF :new.equivid IS NULL THEN

       SELECT drivewaybaseequivid_s.nextval
           INTO v_equivid
             FROM dual;
     :new.equivid:=v_equivid;
  END IF;

      :new.updatetimestamp:=sysdate;

END;

/

show errors
```

6.5 INTERSECTION_BASE_EQUIV

Trigger name – intbaseequiv_bur
Sequence name – intbaseequivid_s

Object DDL:

```
CREATE SEQUENCE intbaseequivid_s START WITH 7550 INCREMENT BY 1;

CREATE OR REPLACE TRIGGER intbaseequiv_bur BEFORE INSERT OR UPDATE ON
ssddba.intersection_base_equiv
FOR EACH ROW

DECLARE

v_equiv NUMBER(8);

BEGIN
  IF :new.equivid IS NULL THEN

      SELECT intbaseequivid_s.nextval
        INTO v_equiv
         FROM dual;

      :new.equivid:=v_equiv;

  END IF;
       :new.UPDATETIMESTAMP:=sysdate;
END;

/

show errors
```

6.6 NODE

Trigger name – node_bur
Sequence name – roadwayjunctionid_s, nodeid_s

Object DDL:

```
CREATE SEQUENCE roadwayjunctionid_s START WITH 22240 INCREMENT BY 1;
CREATE SEQUENCE nodeid_s START WITH 22240 INCREMENT BY 1;

CREATE OR REPLACE TRIGGER node_bur BEFORE INSERT OR UPDATE ON ssddba.NODE
FOR EACH ROW

DECLARE

v_junction NUMBER(6);
v_node NUMBER(6);


BEGIN
  IF :new.roadwayjunctionid IS NULL THEN

     SELECT roadwayjunctionid_s.NEXTVAL
     INTO v_junction
          FROM dual;

     :new.roadwayjunctionid:=v_junction;


 END IF;

 IF :new.nodeid IS NULL THEN

     SELECT nodeid_s.NEXTVAL
     INTO v_node
          FROM dual;
```

```
      :new.nodeid:=v_node;


  END IF;
      :new.updatetimestamp:=SYSDATE;

END;
/

show errors
```

6.7 RAMP_BASE_EQUIV

Trigger name – rampbaseequiv_bur
Sequence name – rampbaseequivid_s

Object DDL:

```
CREATE SEQUENCE  rampbaseequivid_s START WITH 588 INCREMENT BY 1;

CREATE OR REPLACE TRIGGER rampbaseequiv_bur BEFORE INSERT OR UPDATE ON
ssddba.ramp_base_equiv
FOR EACH ROW

DECLARE
v_equivid NUMBER(8);

BEGIN
  IF :new.equivid IS NULL THEN
    SELECT  rampbaseequivid_s.nextval
      INTO v_equivid
        FROM dual;

      :new.equivid:=v_equivid;
  END IF;
```

```
        :new.updatetimestamp:=sysdate;

    END;
    /

    show errors
```

6.8 RAMPSEGMENT

Trigger name – rampsegid_bur
Sequence name – rampsegid_s

Object DDL:

```
CREATE sequence rampsegid_s START WITH 571 increment by 1;

CREATE OR REPLACE TRIGGER rampsegid_bur BEFORE INSERT OR UPDATE ON ssddba.rampsegment
FOR EACH ROW

DECLARE
 v_ramp NUMBER(6);

 BEGIN

   IF :new.rampsegid IS NULL THEN

     SELECT rampsegid_s.nextval
       INTO v_ramp
         FROM dual;

       :new.rampsegid:=v_ramp;

   END IF;

       :new.updatetimestamp :=SYSDATE;
```

```
  END;
/


show errors
```

6.9 ROADWAYJUNCTION

Trigger name – roadwayjunction_bur
Sequence name – roadwayjunctionid2_s, intersectionid_s

Object DDL:

```
CREATE SEQUENCE roadwayjunctionid2_s START WITH 19814 INCREMENT BY 1;
CREATE SEQUENCE intersectionid_s START WITH 19814 INCREMENT BY 1;

CREATE OR REPLACE TRIGGER roadwayjunction_bur BEFORE INSERT OR UPDATE ON
ssddba.ROADWAYJUNCTION
FOR EACH ROW

DECLARE

v_junction NUMBER(6);
v_intersection NUMBER(6);


BEGIN
  IF :new.roadwayjunctionid IS NULL THEN

     SELECT roadwayjunctionid2_s.NEXTVAL
     INTO v_junction
          FROM dual;

     :new.roadwayjunctionid:=v_junction;


  END IF;
```

```
  IF :new.intersectionid IS NULL THEN

      SELECT intersectionid_s.NEXTVAL
      INTO v_intersection
            FROM dual;

      :new.intersectionid:=v_intersection;


  END IF;
      :new.updatetimestamp:=SYSDATE;

END;
/

show errors
```

6.10 ROADWAYJUNCTION_EQUIV

Trigger name – roadwayjunctionequiv_bur
Sequence name – roadwayjunctionequivid_s

Object DDL:

```
CREATE SEQUENCE roadwayjunctionequivid_s START WITH 64786 INCREMENT BY 1;

CREATE OR REPLACE TRIGGER roadwayjunctionequiv_bur BEFORE INSERT OR UPDATE ON
ssddba.roadwayjunction_equiv
FOR EACH ROW

DECLARE
v_equivid NUMBER(8);

BEGIN
  IF :new.equivid IS NULL THEN
```

```
      SELECT roadwayjunctionequivid_s.nextval
         INTO v_equivid
           FROM dual;

    :new.equivid:=v_equivid;

  END IF;

     :new.updatetimestamp:=sysdate;

END;

/

show errors
```

6.11 ROADWAYSEGMENT

Trigger name – roadwaysegment_bur
Sequence name – roadwaySegID_s

Object DDL:

```
CREATE SEQUENCE roadwaySegID_s Increment by 1 Start with 33633;

CREATE OR REPLACE TRIGGER roadwaysegment_bur BEFORE INSERT OR UPDATE ON
ssddba.RoadwaySegment
FOR EACH ROW

DECLARE
 v_road_segid NUMBER(6);

 BEGIN

   IF :new.roadwaysegid IS NULL THEN

     SELECT roadwaysegid_s.nextval
```

```
        INTO v_road_segid
          FROM dual;

        :new.roadwaysegid:=v_road_segid;

      END IF;

        :new.updatetimestamp :=SYSDATE;


    END;

  /

  Show errors
```

6.12 ROUTING_BASE_EQUIV

Trigger name – routingbaseequiv_bur
Sequence name – routingbaseequivid_s

Object DDL:

```
CREATE SEQUENCE routingbaseequivid_s START WITH 33633 INCREMENT BY 1;

CREATE OR REPLACE TRIGGER routingbaseequiv_bur BEFORE INSERT OR UPDATE ON
ssddba.routing_base_equiv
FOR EACH ROW

DECLARE

v_equivid NUMBER(8);

BEGIN
  IF :new.equivid IS NULL THEN
    SELECT  routingbaseequivid_s.nextval
      INTO v_equivid
```

```
        FROM dual;

     :new.equivid:=v_equivid;
  END IF;

      :new.updatetimestamp:=sysdate;

END;
/

show errors
```

6.13 ROUTINGSEGMENT

Trigger name – routingsegment_bur
Sequence name – routingsegid_s

Object DDL:

```
 CREATE sequence routingsegid_s START WITH 33633 INCREMENT BY 1;

CREATE OR REPLACE TRIGGER routingsegment_bur BEFORE INSERT OR UPDATE ON ssddba.routingsegment
FOR EACH ROW

DECLARE
 v_route_segid NUMBER(6);

 BEGIN
  IF :new.ROUTINGSEGID IS NULL THEN

     SELECT   routingsegid_s.NEXTVAL
       INTO v_route_segid

         FROM dual;

       :new.ROUTINGSEGID:=v_route_segid;
```

```
  END IF;

      :new.updatetimestamp :=SYSDATE;


  END;

/

Show errors
```

6.14 ROUTINGTRANSPORTJUNCTION

Trigger name – routingtransportjunction_bur
Sequence name – routingjunctionid_s

Object DDL:

```
CREATE SEQUENCE routingjunctionid_s START WITH 22240 INCREMENT BY 1;

CREATE OR REPLACE TRIGGER routingtransportjunction_bur BEFORE INSERT OR UPDATE ON
ssddba.ROUTINGTRANSPORTJUNCTION
FOR EACH ROW

 DECLARE
 v_nodeid NUMBER(6);

 BEGIN

   IF :new.routingjunctionid IS NULL THEN

     SELECT routingjunctionid_s.nextval
       INTO v_nodeid
         FROM dual;

       :new.routingjunctionid:=v_nodeid;
```

```
    END IF;

      :new.updatetimestamp:=SYSDATE;

    END;
/
```

6.15 SERVICEROAD_BASE_EQUIV

Trigger name – serviceroadbaseequiv_bur
Sequence name – serviceroadbaseequivid_s

Object DDL:

```
CREATE SEQUENCE serviceroadbaseequivid_s START WITH 133 INCREMENT BY 1;

CREATE OR REPLACE TRIGGER serviceroadbaseequiv_bur BEFORE INSERT OR UPDATE ON
ssddba.serviceroad_base_equiv
FOR EACH ROW

DECLARE
v_equivid NUMBER(8);

BEGIN
  IF :new.equivid IS NULL THEN
      SELECT serviceroadbaseequivid_s.nextval
        INTO v_equivid
          FROM dual;
    :new.equivid:=v_equivid;
  END IF;
    :new.UPDATETIMESTAMP:=sysdate;
END;

/

show  errors
```

6.16 SERVICESEGMENT

Trigger name – servicesegment_bur
Sequence – serviceroadsegid_s

Object DDL:

```
CREATE SEQUENCE serviceroadsegid_s START WITH 101 INCREMENT BY 1;

CREATE OR REPLACE TRIGGER servicesegment_bur BEFORE INSERT OR UPDATE ON ssddba.servicesegment
FOR EACH ROW

DECLARE
v_serv NUMBER(6);

BEGIN
 IF :new.SERVICEROADSEGID IS NULL THEN

    SELECT serviceroadsegid_s.NEXTVAL
      INTO v_serv
         FROM dual;

       :new.SERVICEROADSEGID:=v_serv;
 END IF;

 :new.updatetimestamp:=SYSDATE;

END;

/

show errors
```

6.17 STREET_BASE_EQUIV

Trigger name – streetbaseequiv_bur
Sequence name – streetbaseequivid_s

Object DDL:

```
CREATE SEQUENCE  streetbaseequivid_s START WITH 21613 INCREMENT BY 1;

CREATE OR REPLACE TRIGGER streetbaseequiv_bur BEFORE INSERT OR UPDATE ON
ssddba.street_base_equiv
FOR EACH ROW

DECLARE
v_equivid NUMBER(8);

BEGIN
  IF :new.equivid IS NULL THEN
    SELECT  streetbaseequivid_s.nextval
      INTO v_equivid
        FROM dual;

      :new.equivid:=v_equivid;
  END IF;

      :new.updatetimestamp:=sysdate;

END;
/

show errors
```

6.18 STREETINTERSECTION

Trigger name – streetintersection_bur
Sequence name – streetjunctionid_s

Object DDL:

```
CREATE sequence streetjunctionid_s START WITH 7550 increment by 1;


CREATE OR REPLACE TRIGGER streetintersection_bur BEFORE INSERT OR UPDATE ON
ssddba.streetintersection
FOR EACH ROW



DECLARE

v_int_id NUMBER(6);


BEGIN


  IF :new.streetjunctionid IS NULL THEN

  SELECT streetjunctionid_s.NEXTVAL

    INTO  v_int_id
      FROM dual;

    :new.streetjunctionid:=v_int_id;

   END IF;

      :new.updatetimestamp:=SYSDATE;
```

```
END;

/

show errors
```

6.19 STREETINTERSECTION_EQUIV

Trigger name – streetintersectionequiv_bur
Sequence name – streetintersectionequivid_s

Object DDL:

```
CREATE SEQUENCE streetintersectionequivid_s START WITH 25764 INCREMENT BY 1;

CREATE OR REPLACE TRIGGER streetintersectionequiv_bur BEFORE INSERT OR UPDATE ON
ssddba.STREETINTERSECTION_EQUIV
FOR EACH ROW

DECLARE

v_equivid NUMBER(6);

BEGIN
  IF :new.equivid IS NULL THEN

     SELECT streetintersectionequivid_s.nextval
       INTO v_equivid
         FROM dual;

    :new.equivid:=v_equivid;

  END IF;

     :new.UPDATETIMESTAMP:=sysdate;
END;
```

6.20 STREETROUTE

Trigger name – streetroute_bur
Sequence name – streetroutesegid_s

Object DDL:

```
CREATE SEQUENCE streetroutesegid_s START WITH 1816 INCREMENT BY 1;

CREATE OR REPLACE TRIGGER streetroute_bur BEFORE INSERT OR UPDATE ON ssddba.Streetroute
FOR EACH ROW

DEClARE
v_sroute NUMBER(6);

BEGIN
  IF :new.streetroutesegid IS NULL THEN

      SELECT streetroutesegid_s.NEXTVAL
        INTO v_sroute
          FROM dual;

     :new.streetroutesegid:=v_sroute;

  END IF;

     :new.updatetimestamp:=SYSDATE;

END;

/

show errors
```

6.21 STREETSEGMENT

Trigger name – streetsegment_bur
Sequence name – streetsegid_s

Object DDL:

```
CREATE SEQUENCE streetsegid_s START WITH 13292 INCREMENT BY 1;

CREATE OR REPLACE TRIGGER streetsegment_bur BEFORE INSERT OR UPDATE ON ssddba.streetsegment
FOR EACH ROW

DECLARE
v_street NUMBER(6);

BEGIN
 IF :new.streetSEGID IS NULL THEN

    SELECT streetsegid_s.NEXTVAL
      INTO v_street
         FROM dual;

       :new.Streetsegid:=v_street;
 END IF;

 :new.updatetimestamp:=SYSDATE;

END;

/

show errors
```

Use Case Summary
For
DDOT Street Spatial Database Development

Revision History

Name	Date	Reason For Changes	Version
SSD Use Case Summary	6/24/04	Original Daft	Draft
SSD Use Case Summary	7/2/04	Revised to Add Installation Instruction Merged with Stored Procedures Document	V1.0
SSD Use Case Summary	11/17/04	Revised to Change Some Table and Column Names and Add Additional Attributes based on the New Data Model	V1.2

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Overview

This document summarizes Prototype Use Cases Development for District Department of Transportation (DDOT) Street Spatial Database (SSD) development project. Since there is no sample code available from ESRI for UNETRANS transportation data model, has done extensive study on the data model and tried different approaches to implement the Use Cases provided by DDOT. As time goes by, Use Cases were grown from very generic "Geometry Change" and "Attribute Change" at the very beginning of the project to extremely complex ones by the time this documentation was written.

ArcObjects Visual Basic code was developed for Use Cases. Oracle stored procedures using ArcSDE Java API were also created for certain functions aiming to move some of the jobs from the Client side to the Database side. There are difficulties integrating ArcObjects Code and Oracle stored procedures because they are in different edit sessions by ArcGIS' internal design. Consequently, edits made in ArcMap session which are handled by ArcObjects code can not be seen by Oracle stored procedures unless those edits are explicitly saved before running the stored procedures. In a multi-user environment that most edits are pending, this limitation leads to serious problems that hinder the adoption of stored procedures. Clearly, more research is needed to explore the usage of Oracle stored procedures for ArcGIS. At this point, we recommend NOT using stored procedures when you edit the spatial data.

The following sections will describe use cases, the architecture of the application, the general approach for these use cases, and what layers, tables, fields are updated by the application. Findings on Oracle stored procedures will also be discussed.

Data Model

DDOT SSD data model is based on ESRI's UNETRANS transportation data model. It has multiple data layers that relate to each other. Use pizza as a metaphor, the Base Reference Layers is the crust, on which other layers are situated. The Application Reference Layers are the toppings. They have different flavors. The equivalent tables like tomato souse glue layers together.

Base Reference Layers: Node, RoadwayJunction (formerly Intersection), RoadwaySegment.

Application Reference Layers: StreetSegment, StreetIntersection (formerly CenterlineIntersection), ServiceRoadSegment, RampSegment, DriveSegment, AlleySegment, RoutingSegment, RoutingTransportJunction.

To keep track of the relationships between data layers, a number of equivalent tables were created and populated.

Vertical Relationships (between application layer and base layer):
Street_Base_Equiv: StreetSegment-RoadwaySegment (Line-Line)

Service_Base_Equiv: ServiceRoadSegment-RoadwaySegment (Line-Line)
Ramp_Base_Equiv: RampSegment-RoadwaySegment (Line-Line)
Alley_Base_Equiv: AlleySegment-RoadwaySegment (Line-Line)
Drive_Base_Equiv: DrivewaySegment-RoadwaySegment (Line-Line)
Intersection_Base_Equiv: StreetIntersection-RoadwayJunction (Point-Point)
Routing_Base_Equiv: RoutingSegment-RoadwaySegment (Line-Line)

Horizontal Relationships (within the same layer):
RoadwayJunction_Equiv: RoadwayJunction-RoadwaySegments (Point-Line)
StreetIntersection_Equiv: StreetIntersection-StreetSegments (Point-Line)

The following figure illustrates their relationships.

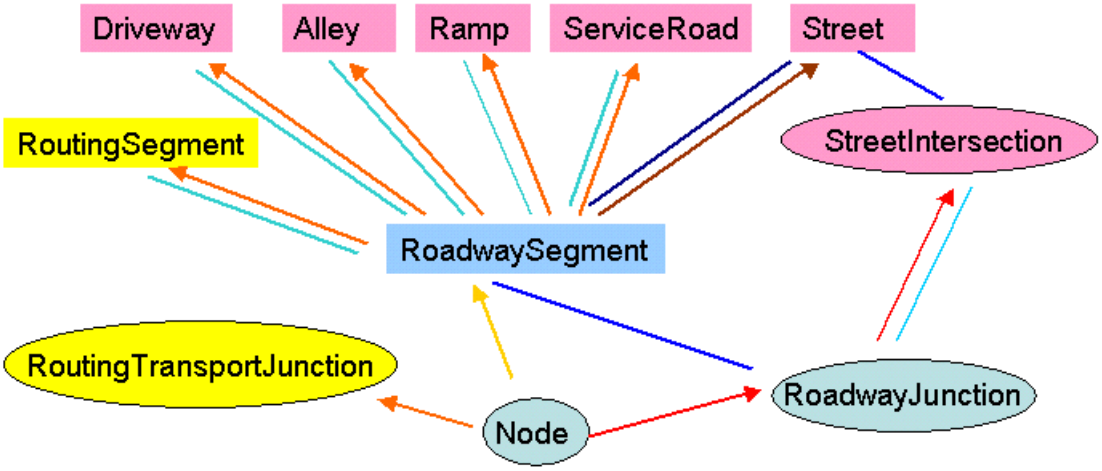


Figure 1: Relationship between Data Layers

<u>Use Cases</u>

The Use Cases are comprised of two groups: Geometry Changes and Attribute Changes. Geometry Changes include “Add New Roadway Segment”, “Realign (Reshape) Existing Roadway Segment”, and “Delete Existing Roadway Segment”. “Realign (Reshape) Existing Roadway Segment” was implemented by GeoDatabase’s Topology Rules. No customized code is involved. Therefore it is not discussed this documentation. “Add New Roadway Segment” Use Case is the most complicated one, which can be further classified into “Add New Street”, “Add New Service Roadway”, “Add New Ramp”, “Add New Alley”, and “Add New Driveway”. Similarly, “Delete Existing Roadway Segment” involves deleting 5 different types of Roadway Segments. For Attribute Changes, it has “Change Subtype of the Roadway Segment” and “Change Other Attributes of the Roadway Segment”. “Change Subtype of the Roadway Segment” was restricted to “Change Alley/Service Road/Driveway/Ramp to Street” for prototype testing. “Change Other Attributes of the Roadway Segment” is still under development by DDOT. The following Figure illustrates the Use Cases developed for prototype testing.

The challenge of these Use Cases is how to synchronize all geometry changes and update all related data layers and equivalent tables that may be affected by a user's edit. For example, when a user simply adds a new roadway segment by drawing a line on the screen, it is a very simple click-drag-release action that takes as little as a couple of seconds. However, to synchronize all changes, in additional to the new roadway segment that should be created, new nodes, new roadway junctions should also be created. We should also consider what application layers and what equivalent tables should be updated. If the new roadway segment intersects other existing roadway segments, it becomes even more complicated, some roadway segments may have to be split which causes numerous changes of the geodatabase.

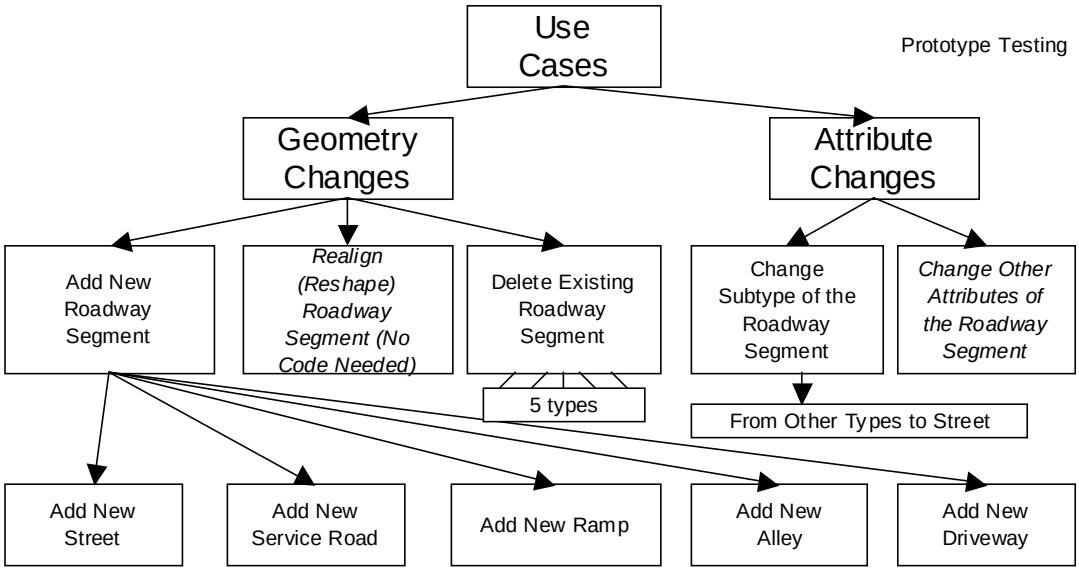


Figure 2: Use Cases

Development Environment

SSD GeoDatabase was created based on the diagram provided by DDOT that is under continuous revision. At the very beginning, a personal GeoDatabase was used. Later it was migrated to Oracle SDE. The application works with both personal geodatabase and SDE. At the early stage, mock-up data were created and used for testing. Later, real data were copied from GeoImaging to the development server for testing. Microsoft Visual Basic 6.0 was used to create ArcObjects code. The workstation used for testing has Windows 2000 Professional with ArcGIS 8.3 installed.

Architecture

It is envisioned that a user will use ArcGIS 8.3 (either ArcEditor 8.3 or ArcInfo 8.3) to edit the geodatabase. (ArcView 8.3 can not edit a SDE geodatabase). The application is so designed that a user will use existing editing tools that are provided by ESRI with which he or she is already quite familiar. Our application, SSD Engine, was compiled by VB 6.0 as a dynamic linked library (DLL) that can be loaded into ArcGIS as a new button. SSD Engine monitors user's activities, completes all necessary tasks behind the

scene to synchronize data between multiple layers and equivalent tables. Therefore, minimal training is required to use our application. The following figure illustrates the general architecture.

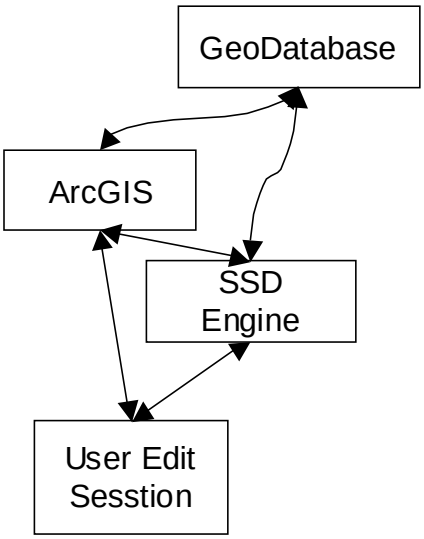


Figure 3: System Architecture

Installation

The following are the steps to install SSD Engine:

- Install SSD Engine with the installation package (run setup.exe). By default SSDEngine.dll will be copied to c:\dcdot directory.
- Open an ArcGIS project.
- If your editor toolbar is not displayed by default, add that toolbar by clicking menu "View>Toolbars>Editor".
- Click menu "Tools>Customize…" to display the Customize dialog box.
- Click Commands tab
- Make sure "Save in:" drop-down list has your current ArcGIS project file selected
- Click "Add from file…" button to display Open file dialog box, Navigate to the directory where SSD Engine (SSDEngine.DLL) resides and double Click the DLL file.
- SSDEngine will be displayed in "Added Objects" window, Click OK. SSDEngine appears in DDOTSSD Category which looks like a flow-chart.
- Click and drag SSDEngine to your editor toolbar.
- Click Close
- Save the project. It can be used as a template for other projects that need to edit SSD with SSD Engine.

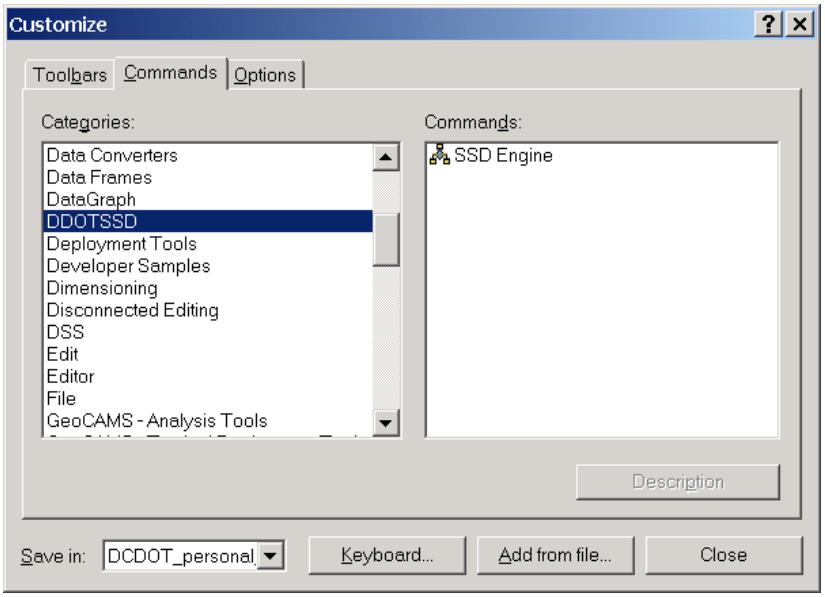


Figure 4: Customize Dialog Box After SSD Engine was loaded

Figure 5: New Editor Toolbar with SSD Engine

Data Layers

Before edit any data, load data layers to the projects and set their query definition.

The following data layers are supposed to have been pre-loaded into ArcGIS and their Query Definition have been set to “LifeCycleStatus = 1” or Active.

Base Reference Layers: Node, RoadwayJunction (formerly Intersection), RoadwaySegment.

Application Reference Layers: StreetSegment, StreetIntersection (formerly CenterlineIntersection), ServiceRoadSegment, RampSegment, DriveSegment, AlleySegment, RoutingSegment, RoutingTransportJunction.

For your convenience, a sample ArcMap project file (DCDOT_personal_V1.2.mxd) was included with the installation package. You may need to reset the data source by editing layer properties for each layer if your data is not in the default directory or if you are using Oracle SDE.

Use the Tool

To use the SSD Engine, a user needs to set the following options by clicking the SSD Engine Button from ArcGIS:

- Whether or not to use Oracle ArcSDE
- If Oracle ArcSDE is used, specify the database connection parameters, which include data source, username, and password. Also indicate if stored procedures

are used. If stored procedures are used, please provide oracle server name and ArcSDE port number (default is 5151). Click “Test Connection” to make sure the parameters entered are correct and the database server is up running.

- If personal geodatabase is used, specify the path to the Microsoft Access file.
- Specify if detailed debug message should be displayed (a useful tool to identify problems, but should generally be unchecked).

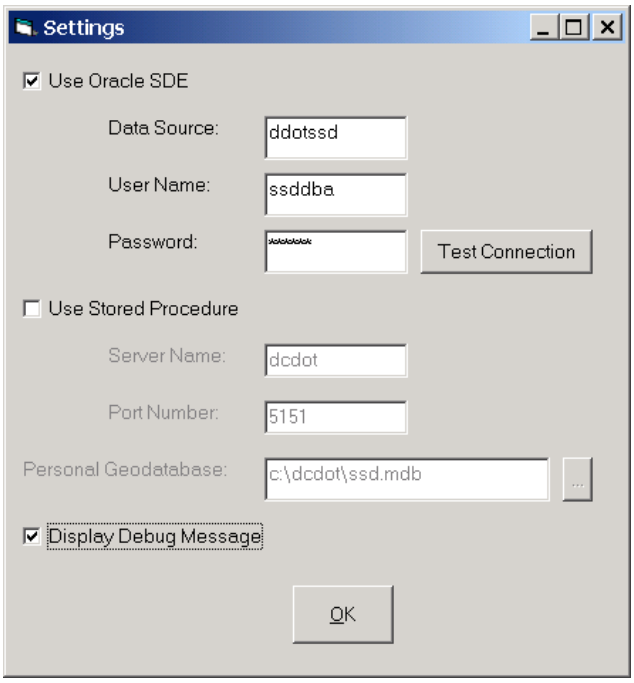


Figure 6: settings

Since DDOT SSD will be residing on an Oracle ArcSDE server, you should choose ArcSDE option for production use, but personal geodatabase can be used for training or testing.

Add New RoadwaySegment

To add new roadway segment, first click Editor toolbar’s **Start Editing** menu. Task, Target, and other editing tools become available. You can then specify snapping options from Editor toolbar’s **Snapping** menu. It is recommended to snap to RoadwaySegment. To add street, simply choose street type in RoadwaySegment layer from the **Target** drop-down list. Similarly, you can choose to add ServiceRoad, Ramp, Alley, and Driveway. Please note that all edits should be initiated from RoadwaySegment layer. If you directly edit other data layers, data consistency is not guaranteed. You can use ArcMap’s sketch tool ( ) to draw the new roadway segment. After the new segment is drawn, a form will be displayed to collect attributes about the new segment. Items with bold label are the required fields. Click OK when you are finished.

Figure 7: start editing

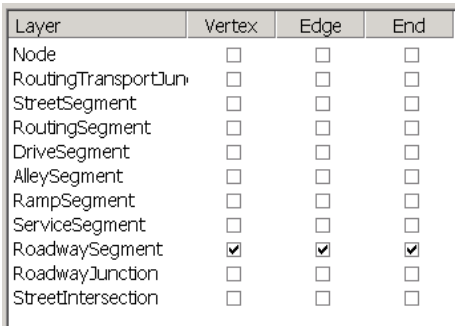


Figure 8: snapping options

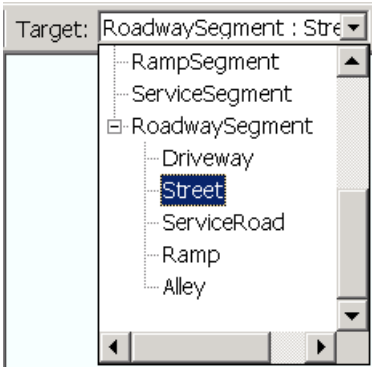


Figure 9: pick a target

When a user adds a new roadway segment, the following actions will be taken by SSD Engine:

- Check which Road Type is going to be created.
- Display a form to collect attributes depending on road type.
- Check if the segment intersects other existing roadway segments, if so, split existing roadway segments and update application layers and equivalent tables accordingly. Also split the new roadway segment.
- Check if the end points of the segment overlay existing nodes, if not, create new nodes and new routing transport junction.
- Create new roadway segment
- Check if new roadway junction should be created. If so, also update Node table. If roadway junction is involved, update RoadwayJunction_Equiv table.
- Create new street segment, service road segment, ramp segment, alley segment, or drive segment and update corresponding “application layer to base layer” segment equivalent table (Street_Base_Equiv, Service_Base_Equiv, Ramp_Base_Equiv, Alley_Base_Equiv, Drive_Base_Equiv) based on road type.
- Check if new street intersection should be created. If so, also update Intersection_Base_Equiv and Streetintersection_Equiv.
- Create new routing segment and populate Routing_Base_Equiv table.
- Display detailed debug message if the user set this option in the settings.

After the new segments are created, you might want to verify the results using Identify ( ) tool.

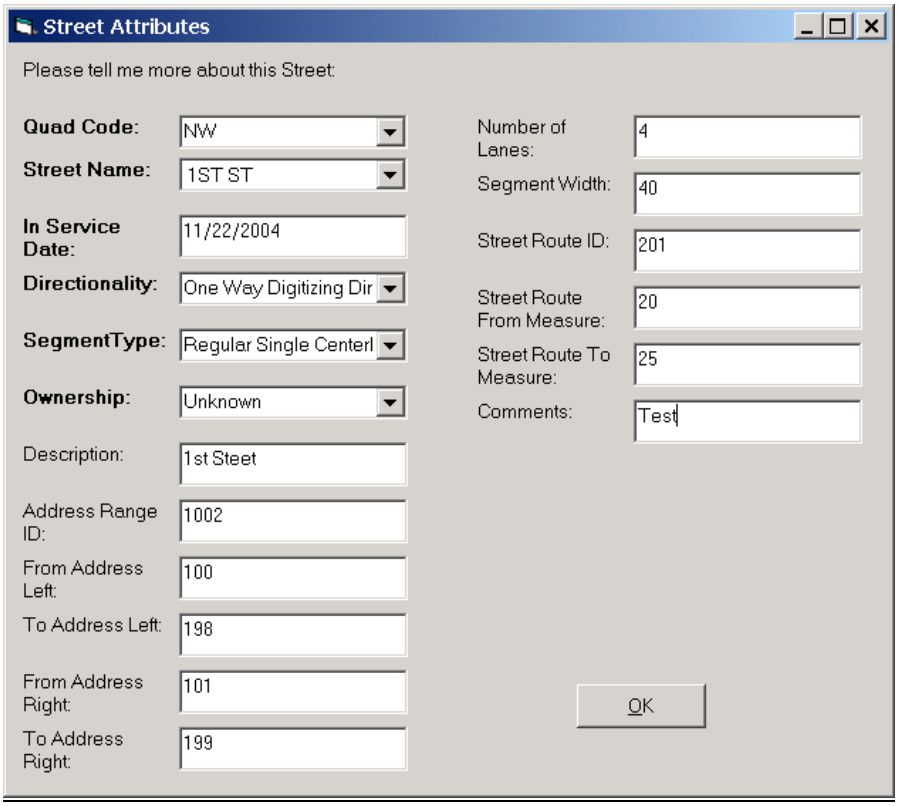


Figure 10: Form to Collect Street Attributes

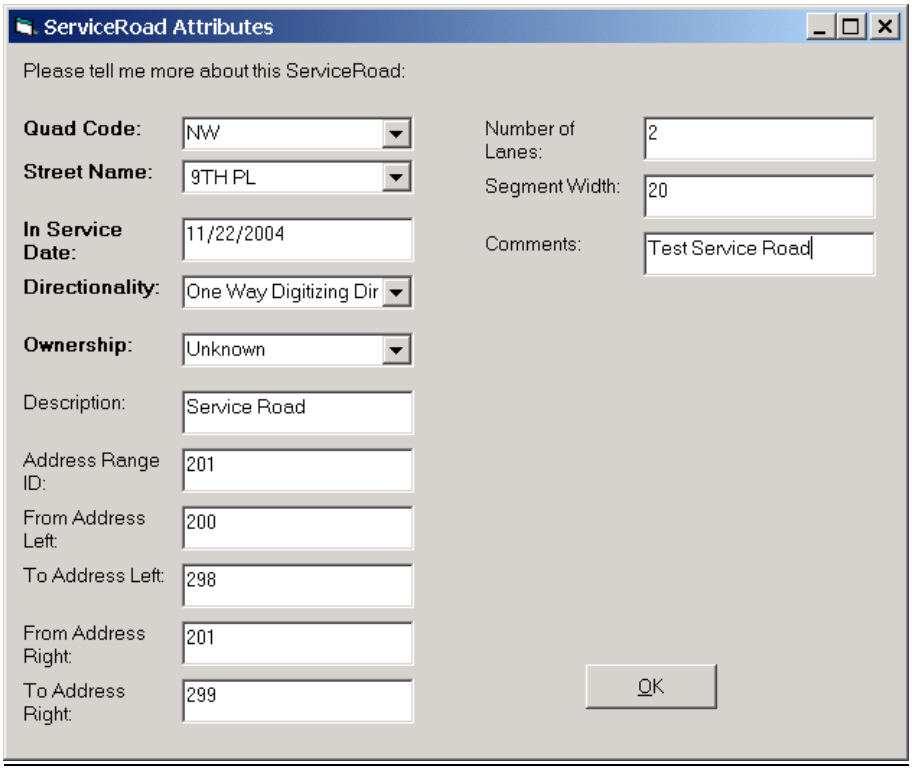


Figure 11: Form to collect Service Road Attributes

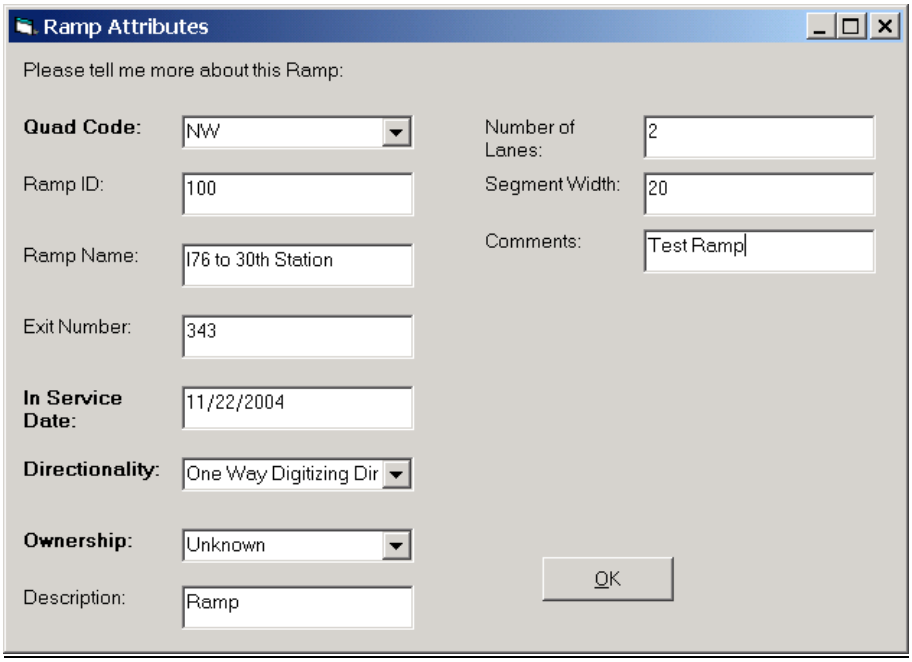


Figure 12: Form to Collect Ramp Attributes

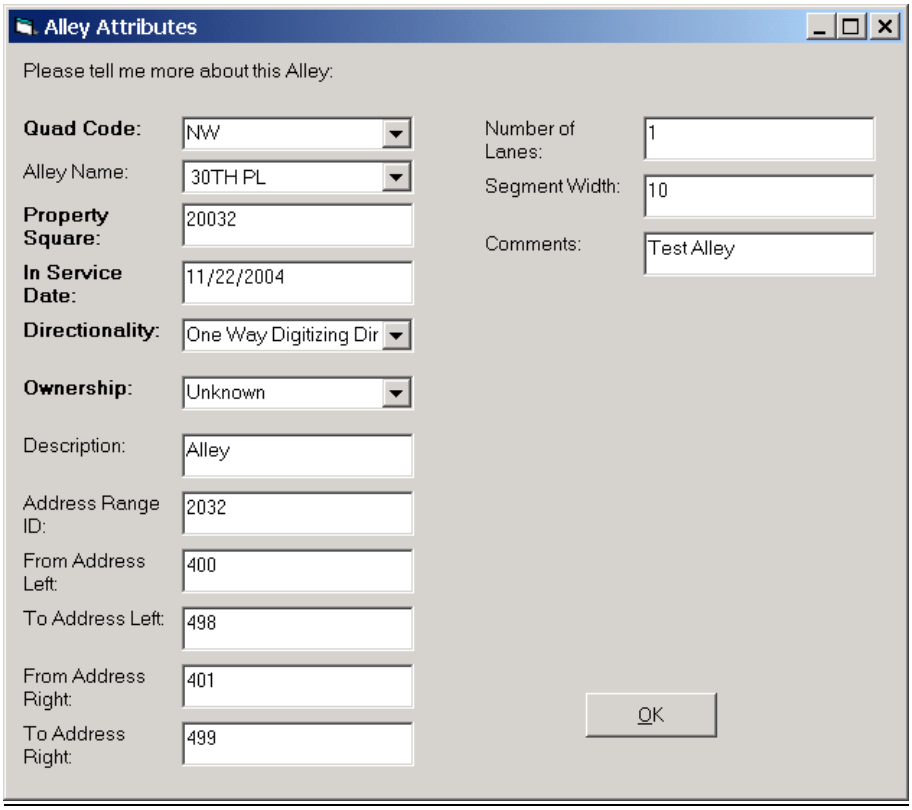


Figure 13: Form to Collect Alley Attributes

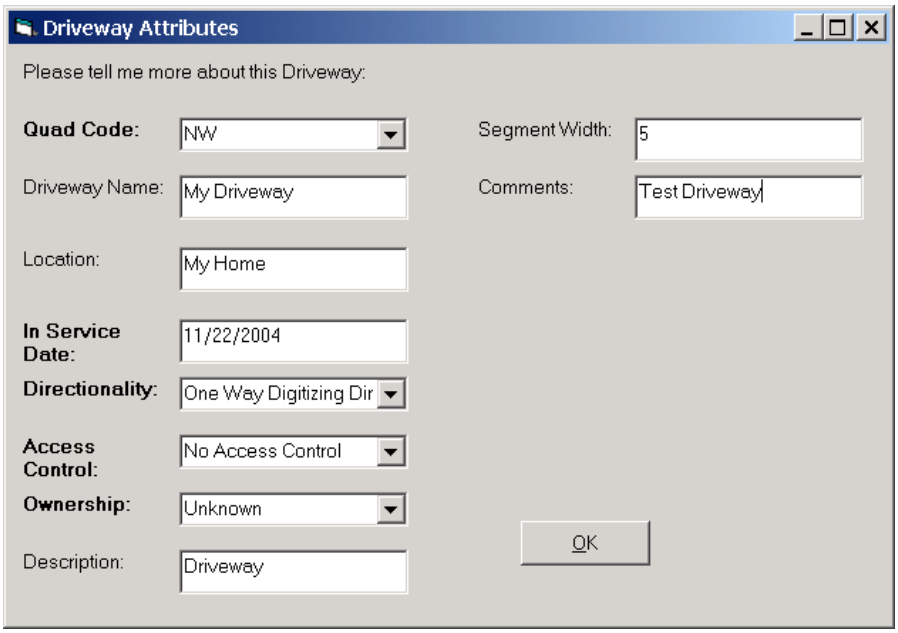


Figure 14: Form to Collect Driveway Attributes

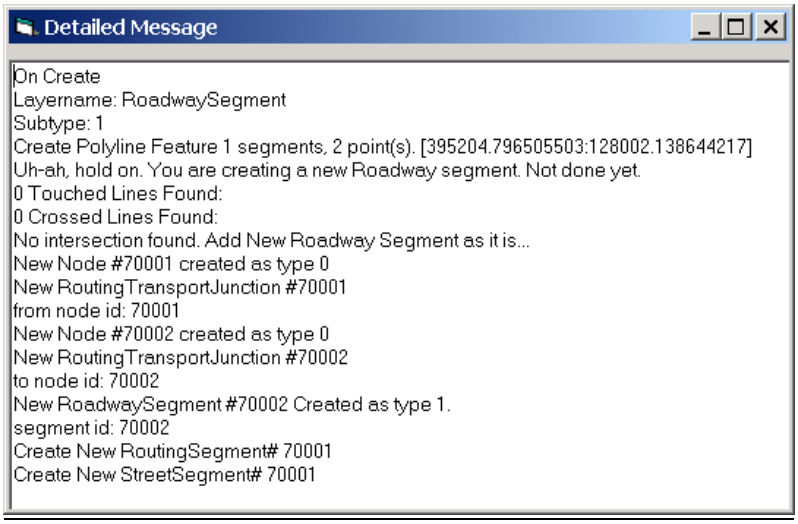
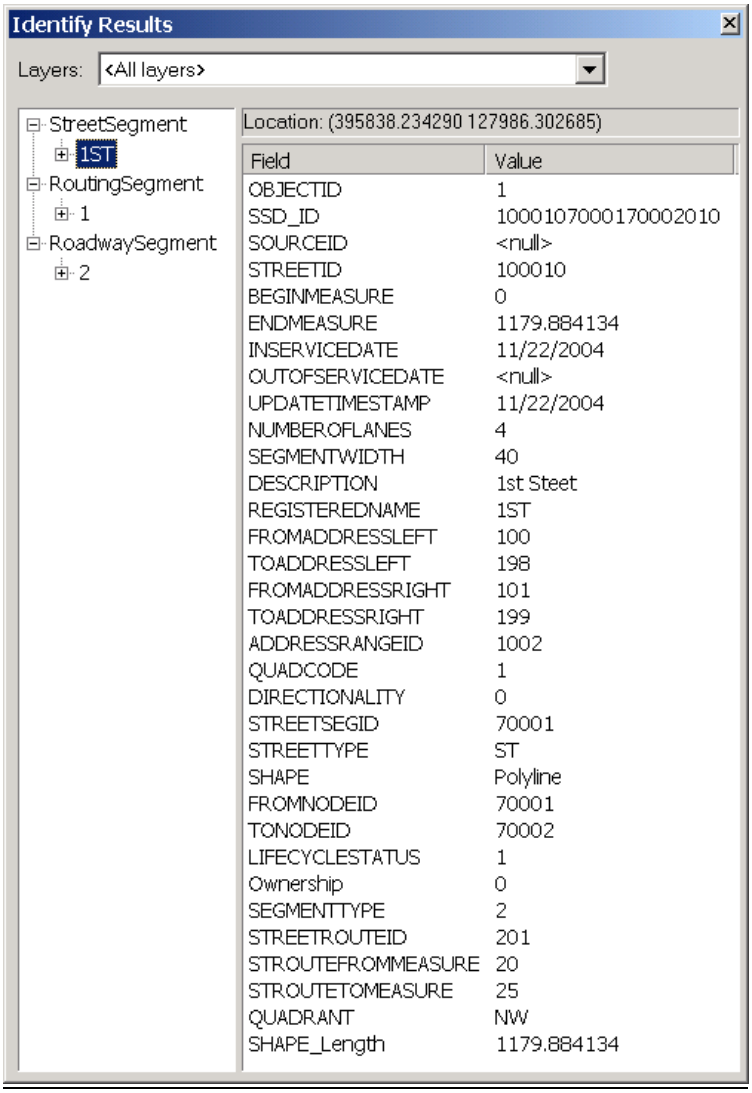


Figure 15: Sample Detailed Debug Message



Field	Value
OBJECTID	1
SSD_ID	1000107000170002010
SOURCEID	<null>
STREETID	100010
BEGINMEASURE	0
ENDMEASURE	1179.884134
INSERVICEDATE	11/22/2004
OUTOFSERVICEDATE	<null>
UPDATETIMESTAMP	11/22/2004
NUMBEROFLANES	4
SEGMENTWIDTH	40
DESCRIPTION	1st Steet
REGISTEREDNAME	1ST
FROMADDRESSLEFT	100
TOADDRESSLEFT	198
FROMADDRESSRIGHT	101
TOADDRESSRIGHT	199
ADDRESSRANGEID	1002
QUADCODE	1
DIRECTIONALITY	0
STREETSEGID	70001
STREETTYPE	ST
SHAPE	Polyline
FROMNODEID	70001
TONODEID	70002
LIFECYCLESTATUS	1
Ownership	0
SEGMENTTYPE	2
STREETROUTEID	201
STROUTEFROMMEASURE	20
STROUTETOMEASURE	25
QUADRANT	NW
SHAPE_Length	1179.884134

Figure 16: Using Identify Tool to verify Results

Delete Existing RoadwaySegment

It is recommended to set only RoadwaySegment as selectable layer using "Selection>Set Selectable Layers" menu so that the user will not accidentally delete other data layers that might cause data inconsistency.

To delete an existing roadway segment, first select the segment using **Select Features** ( ) Tool or other selection tools, then press **Delete** key.

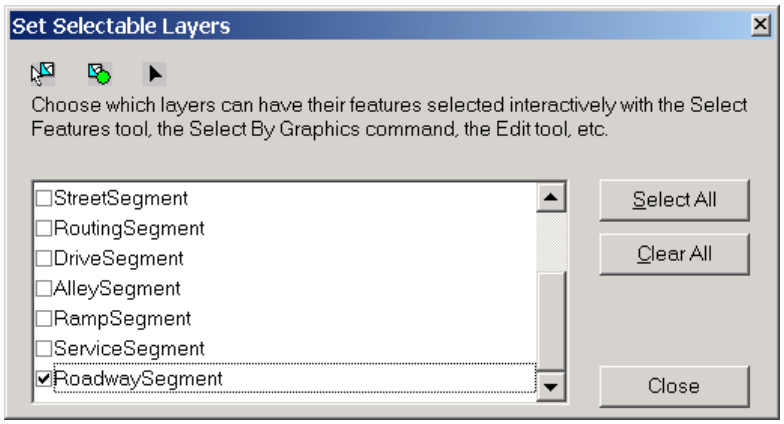


Figure 17: Set Selectable Layers

When a user deletes a new RoadwaySegment, the following actions will be taken by SSD Engine:

- Check which RoadType
- If it is a street RoadwaySegment, check if its corresponding StreetSegment contains other RoadwaySegments, if so, reassemble the StreetSegment from base. New StreetSegments will be created.
- Retire corresponding application layer Segments. If it is StreetSegment, also check if StreetIntersection and StreetIntersection_Equiv table should be updated. Retire StreetIntersection if the number of linked StreetSegment is less than two.
- Update RoadwayJunction and RoadwayJunction_Equiv Table. Retire the RoadwayJunction if it connects less than two segments. In this case, the Node type of the corresponding Node should be updated to End Node.
- Retire RoadwaySegment and corresponding RoutingSegment. Update "Application Layer to Base Layer" Equivalent table Street_Base_Equiv, Service_Base_Equiv, Ramp_Base_Equiv, Alley_Base_Equiv, or Drive_Base_Equiv depending on RoadType and Routing_Base_Equiv.
- Update Node, retire the Node if it was end node.

Subtype Change of Existing RoadwaySegment

To change the subtype of a roadway segment, first select the segment, then click **Attributes** Tool ( ) from the Editor toolbar. Go to the RoadType field and pick the new value. Currently SSD Engine supports only changes from other road types to Streets.

When a user changes the subtype of a RoadwaySegment, the following actions will be taken by SSD Engine:

- Check which RoadType it is.
- If it is changing from RoadwaySegment other than street to Street, display a form to collect attributes such as QuadCode, StCode, InServiceDate, and Directionality for the new street.
- Retire corresponding application layer Segments and update Equivalent Table.
- Create New StreetSegment, update Street_Base_Equiv table.

- Check if any existing StreetSegment should be split
- Check if new StreetIntersection should be created. If so, also update Intersection_Base_Equiv. If StreetIntersection is involved, update StreetIntersection_Equiv table.
- Retire original RoutingSegment and create new RoutingSegment. Update equivalent table Street_Base_Equiv, Service_Base_Equiv, Ramp_Base_Equiv, Alley_Base_Equiv, or Drive_Base_Equiv depending on the original RoadType of the RoadwaySegment and Routing_Base_Equiv.

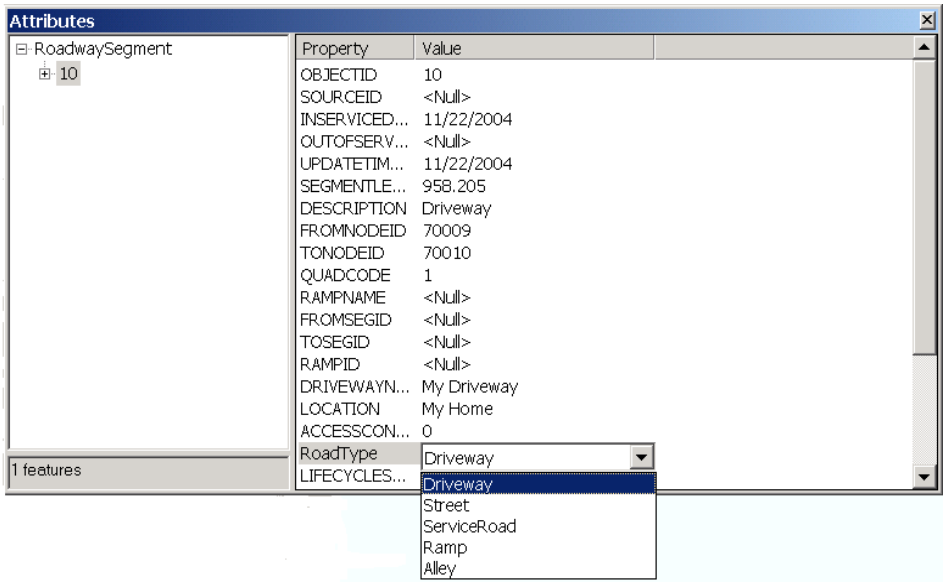


Figure 18: Subtype Change

List of Data Layers and Equivalent Tables that are Created or Updated by SSD Engine

The following section lists data layers, equivalent tables, and associated fields that have been created or updated by DDS Engine for Prototype Testing of Use Cases.

Base Reference Layer

1. Feature Class: RoadwaySegment

RoadwaySegment is the foundation of SSD. All edits should be initiated from RoadwaySegment data layer. Fields that have been updated by SSD Engine for Prototype Testing are as following:

Attribute	Description
RoadwaySegID	Serial number, automatically generated.
InServiceDate	Date when asset (RoadwaySegment) was commissioned into service – Data will be gathered from user's input

UpdateTimeStamp	Last time the table was updated. This is automatically populated with current Date
LifeCycleStatus	1 -- Set to active for new segment. 2 -- Set to retired when deleted. Automatically populated.
Segment Length	Segment Length, automatically populated
Description	Description, gathered from user's input
FromNodeID	NodeID of the **from** node of the roadway segment - base reference layer nodes (see Node feature class). Automatically populated.
ToNodeID	NodeID of the **to** node of the roadway segment - base reference layer nodes (see Node feature class). Automatically populated.
QuadCode	City quadrant in which segment exists. (Also a coded value domain), gathered from user's input
StreetID	QuadCode + StCode, gathered from user's input
Directionality	There are 4 types: 0 -- one way (digitizing direction) 1 -- one way (opposite digitizing direction) 2 -- two way 3 -- unknown. Gathered from user's input
Ownership	Ownership, gathered from user's input
Ramp ID	Ramp ID, gathered from user's input
RampName	Ramp Name, gathered from user's input
FromSegID	From Segment ID of the Ramp. Automatically populated.
ToSegID	To Segment ID of the Ramp. Automatically populated.
ExitNo	Exit Number of the Ramp, gathered from user's input
DrivewayName	Driveway Name, gathered from user's input
Location	Location of the Driveway, gathered from user's input
AccessControl	Access Control of the Driveway, gathered from user's input 0 – No Access Control 1 – Has Access Control
AddressRangeID	Address Range ID, gathered from user's input

RoadType <<subtype>>	There are 5 types: 1 – Street 2 – ServiceRoad 3 – Ramp 4 – Alley 5 – Driveway Automatically populated when a user selects the target subtype.

2. Feature Class: Node

The node feature class is generated from the end points of RoadwaySegment. By default, the node will be classified as End Nodes; however, when two or more RoadwaySegments are connected to one end node, that end node becomes Intersection. When a RoadwaySegment is deleted, the End Node (if it's not intersection) will be deleted as well.

The following attributes are updated by SSD Engine for the Prototype Testing.

Attribute	Description
NodeID	Unique identifier for the node feature, sequence number, automatically populated
RoadwayJunctionID	Roadway Junction ID, automatically populated
UpdateTimestamp	Last time the table was updated. This is automatically populated with current Date
LifeCycleStatus	Domain based (Status code). 1 -- Set to Active for new features. 2 -- Set to Retired when deleted. Automatically populated.
X_Coord	X coordinate of the Node. Automatically populated
Y_Coord	Y coordinate of the Node. Automatically populated
NodeType	0 – End Node 1 – Intersection

3. Feature Class: RoadwayJunction (Intersection)

The RoadwayJunction feature will be generated if a node has two or more links. The corresponding Node's type change to RoadwayJunction when this happens. When a user deletes a RoadwaySegment, however, RoadwayJunctions may be retired if the number of linked segments reduced to one. Consequently, the node type of the corresponding Node changed back to End Node.

The following fields are updated by SSD Engine for Prototype Testing.

Attribute	Description
IntersectionID	Sequence number, automatically populated
RoadwayJunctionID	Roadway Junction ID, automatically populated
NodeID	NodeID of the corresponding Node, automatically populated.
UpdateTimestamp	Last time the table was updated. Automatically populated with current Date
LifeCycleStatus	Domain based (Status code). 1 -- Set to Active for new features. 2 -- Set to Retired when deleted. Automatically populated.
NumberOfLink	Captures the number of segments linked to this point feature, automatically populated.
ControlType	There are 4 control types: 1 – Controlled 2 – AllWayStop 3 – TwoWayStop 4 – UnControlled Populate with default value 4
IntersectionType <<SubtypeField>>	There are 5 Intersection types: 1 – StreetIntersection 2 – ServiceRoadIntersection 3 – RampIntersection 4 – AlleyIntersection 5 – DriveIntersection Automatically populated depends on what segments connect to the intersection.

4. **Equivalent Table: RoadwayJunction_Equiv (Intersection_Equiv)**

The RoadwayJunction_Equiv table represents the horizontal relationship at the base reference layer between the RoadwayJunctions and the RoadwaySegments. It is a point to line relationship.

Attribute	Description
EquivID	Sequence number, automatically generated
IntersectionID	The IntersectionID of the intersection, automatically populated.
NodeID	The NodeID of the corresponding Node of the Intersection, automatically populated.
IntersectSegMeasure	0 – if a segment is leaving the intersection 1 – if the segments is entering the intersection Automatically populated.
IntersectSegID	RoadwaySegID of the segment connecting to the intersection, automatically populated.
IsPrimary	1 – the segment is primary street The primary segment at each intersection is determined by the following criteria with diminishing priority: Segment with QuadCode of 5, meaning boundary, and/or is the segment leaving the intersection, and/or its StCode is the lowest in value. 0 – is not primary street Automatically populated.
Status	Status 1 – Active 2 - Inactive
UpdateTimeStamp	UpdateTimeStamp, automatically generated

Application Reference Layer

1. **Feature Class: StreetSegment**

The street segment feature class represents the street centerlines. It will be automatically generated when a new RoadwaySegment is created or when deleting and subtype change of the RoadwaySegment warrant the creation of new StreetSegments. It may be retired when one of the underlining RoadwaySegments is retired.

Attribute	Description
StreetSegID	Sequence number, automatically generated.
SSD_ID	19 character ID Based on the concatenation of the following : QuadCode (1) + StCode (5) + FromNode (5) + ToNode (5) + *RoadType (2) + Directionality (1), automatically generated.
UpdateTimeStamp	Automatically populated with current Date
LifecycleStatus	1– Set to Active for new features 2 – Set to Retired if deleted. Automatically populated
QuadCode	Quad Code, gathered from user's input
FromNodeID	NodeID of the Base From Node, automatically populated.
ToNodeID	NodeID of the base To Node, automatically populated.
BeginMeasure	Automatically populated
EndMeasure	Automatically populated
InServiceDate	In Service Date, gathered from user's input
Directionality	Directionality, gathered from user's input
Ownership	Ownership, gathered from user's input
Description	Description, gathered from user's input
NumberofLanes	Number of Lanes, gathered from user's input
SegmentWidth	Segment Width, gathered from user's input
StreetRouteID	Street Route ID, gathered from user's input
StRouteFromMeasure	Street Route From Measure, gathered from user's input
StRouteToMeasure	Street Route To Measure, gathered from user's input
StreetID	Street ID, automatically populated
RegisteredName	Street Name, automatically populated
StreetType	Street Type, automatically populated
Quadrant	Quadrant, automatically populated
AddressRangeID	Address Range ID, gathered from user's input
FromAddressLeft	From Address Left, gathered from user's input

ToAddressLeft	To Address Left, gathered from user's input
FromAddressRight	From Address Right, gathered from user's input
ToAddressRight	To Address Right, gathered from user's input

2. Equivalent Table: Street_Base_Equiv

The Street_Base_Equiv represents the vertical relationship between Street Segment in the application reference layer and the corresponding Roadway Segments in the base reference layer. It is a line to line relationship. One StreetSegment may relate to multiple RoadwaySegments.

Attribute	Description
EquivID	Sequence number, automatically populated
StreetSegID	StreetSegID of the StreetSegment in application layer, automatically populated.
RoadwaySegID	RoadwaySegID of RoadwaySegment in the base reference layer, automatically populated.
Status	1 if active, 2 if inactive, automatically populated.
UpdateTimeStamp	Automatically populated with SysDate

3. Feature Class: StreetIntersection (CenterlineIntersection)

The StreetIntersection feature class is a point geometry that represents intersection of street (centerline) segments. It is generated when two or more streets connect to the same point. It will be retired if the number of linked StreetSegment is less than two.

Attribute	Description
StreetJunctionID	Sequence number, automatically generated.
UpdateTimestamp	Automatically populated with current Date
LifeCycleStatus	1– Set to Active for new features 2 – Set to Retired if deleted.

	Automatically populated.
InServiceDate	In Service Date, gathered from user's input
StreetIntersectionID	The StreetIntersectionID is a 14 character ID with the first 6 characters representing the StreetID of the 'OnStreet' or Primary Street segment and the next 6 characters representing the StreetID of the Secondary street. The last two characters represent the sequence number if the Primary Street and the Secondary Street have multiple intersections. (The secondary street is the next street that would have been Primary Street if the Primary Street were removed.)
NumberOfLink	Number of Street segments entering and leaving the intersection. Automatically populated.
ControlType <<SubtypeField>>	1 = Controlled 2 = AllWayStop 3 = TwoWayStop 4 = UnControlled Populated with default value 4.

4. Equivalent Table :Intersection_Base_Equiv

The Intersection_Base_Equiv represents the vertical relationship between Street Intersections in the application reference layer and the corresponding RoadwayJunction in the base reference layer. It is a point to point relationship.

Attribute	Description
EquivID	Sequence number, automatically populated
StreetJunctionID	StreetJunctionID of the street intersection in the application layer, automatically populated.
IntersectionID	IntersectionID of the RoadwayJunction in the base layer, automatically populated.
Status	Status, automatically populated 1 – Active 2 - Inactive
UpdateTimeStamp	Update Time Stamp, automatically populated

5. Equivalent Table: StreetIntersection_Equiv

The StreetIntersection_Equiv represents the horizontal relationship between street centerline intersections at the application reference layer and street segments at the application layer.

Attribute	Description
Equiv_ID	Sequence number, automatically populated
StreetJunctionID	Street Intersection ID, automatically populated.
IntersectStreetID	StreetSegID of the StreetSegment linked to the Intersection, automatically populated.
IntersectStreet_Measure	0 – if the segment is leaving the intersection 1 -- if the segment is entering the intersection Automatically populated.
IsPrimary	1 — If this the segment has QuadCode 5 and/or leaving the intersection, and/or has the lowest streetID value 0 — Other segments Automatically populated.
Status	Status, automatically populated 1 – Active 2 - Inactive

6. Feature Class: ServiceSegment

This feature class represents service road segments in the application layer. It is generated when a user adds a new Service RoadwaySegment. It will be retired when the underlining Service RoadwaySegment is retired.

Attribute	Description
ServiceSegID	Sequence number, automatically populated
SSD_ID	The SSD_ID was created by concatenating 1 character QuadCode, 5 character StCode, FromNodeID, ToNodeID, RoadType, and the directionality. Automatically populated.

UpdateTimestamp	Automatically populated with current Date
LifeCycleStatus	1– Set to Active for new features 2 – Set to Retired if deleted. Automatically populated.
QuadCode	Quadcode, automatically populated
FromNodeID	Automatically populated with NodeID of the base From Node
ToNodeID	Automatically populated with NodeID of the base To Node
BeginMeasure	Begin Measure, automatically populated
EndMeasure	End Measure, automatically populated
InServiceDate	In Service Date, gathered from user's input
Directionality	Directionality, gathered from user's input
Ownership	Ownership, gathered from user's input
Description	Description, gathered from user's input
SegmentWidth	Segment Width, gathered from user's input
StreetID	Street ID, automatically populated
RegisteredName	Street Name, automatically populated
StreetType	Street Type, automatically populated
Quadrant	Quadrant, automatically populated
FromAddressLeft	From Address Left, gathered from user's input
ToAddressLeft	To Address Left, gathered from user's input
FromAddressRight	From Address Right, gathered from user's input
ToAddressRight	To Address Right, gathered from user's input

7. Equivalent Table: ServiceRoad_Base_Equiv

The ServiceRoad_Base_Equiv represents the vertical relationship between a service road segment in the application layer and corresponding roadway segment in the base reference layer. It is a line to line relationship.

Attribute	Description

EquivID	Sequence number, automatically populated
ServiceRoadSegID	ID of service road segment in application layer, automatically populated.
RoadwaySegID	ID of RoadwaySegment in the base reference layer, automatically populated.
Status	1 if active, 2 if inactive, automatically populated.
UpdateTimeStamp	Automatically populated with SysDate

8. Feature Class: RampSegment

The ramp segment feature class represents ramps in the application layer. It is generated when a user adds a new Ramp RoadwaySegment. It will be retired when the underlining Ramp RoadwaySegment is retired.

Attribute	Description
RampSegID	Sequence number, automatically populated
SSD_ID	The SSD_ID was created by determining the FromStreet and ToStreet, concatenating them sorting them to determine repeated instances and further concatenating with a two character sequence to ensure uniqueness.
UpdateTimeStamp	Automatically populated with current Date
LifeCycleStatus	1– Set to Active for new features 2 – Set to Retired if deleted. Automatically populated.
FromStreetID	Automatically populated with From Street ID
ToStreetID	Automatically populated with To Street ID
FromNodeID	Automatically populated with NodeID of the base From Node
ToNodeID	Automatically populated with NodeID of the base To Node

BeginMeasure	Begin Measure, automatically populated
EndMeasure	End Measure, automatically populated
InServiceDate	In Service Date, gathered from user's input
Directionality	Directionality, gathered from user's input
Ownership	Ownership, gathered from user's input
Description	Description, gathered from user's input
NumberofLanes	Number of Lanes, gathered from user's input
SegmentWidth	Segment Width, gathered from user's input
RampID	Ramp ID, gathered from user's input
RampName	Ramp Name, gathered from user's input
ExitNo	Exit Number, gathered from user's input

9. Equivalent Table: Ramp_Base_Equiv

The Ramp_Base_Equiv represents the vertical relationship between a ramp segment in the application layer and the corresponding roadway segment in the base reference layer. It is a line to line relationship.

Attribute	Description
EquivID	Sequence number, automatically populated
RampSegID	ID of Ramp segment in application layer, automatically populated.
RoadwaySegID	ID of RoadwaySegment in the base reference layer, automatically populated.
Status	1 if active, 0 if inactive, automatically populated.
UpdateTimestamp	Automatically populated with SysDate

10. Feature Class: AlleySegment

The alley segment feature class represents alleys in the application layer level. It is generated when a user adds a new Alley RoadwaySegment. It will be retired when the underlining Alley RoadwaySegment is retired.

Attribute	Description
AlleySegID	Sequence number, automatically populated
SSD_ID	Derived using the convention QuadCode + SquareNo + Sequence. For Prototype Testing, since SquareNo is not available, it is populated with all zeros.
UpdateTimeStamp	Automatically populated with current Date
LifeCycleStatus	1– Set to Active for new features 2 – Set to Retired if deleted. Automatically populated.
FromNodeID	Automatically populated with NodeID of the base From Node
ToNodeID	Automatically populated with NodeID of the base To Node
BeginMeasure	Begin Measure, automatically populated
EndMeasure	End Measure, automatically populated
InServiceDate	In Service Date, gathered from user's input
Directionality	Directionality, gathered from user's input
Ownership	Ownership, gathered from user's input
Description	Description, gathered from user's input
NumberofLanes	Number of Lanes, gathered from user's input
SegmentWidth	Segment Width, gathered from user's input
PropertySquare	Property Square, gathered from user's input
StreetID	Street ID, automatically populated
RegisteredName	Street Name, automatically populated
StreetType	Street Type, automatically populated
Quadrant	Quadrant, automatically populated
FromAddressLeft	From Address Left, gathered from user's input
ToAddressLeft	To Address Left, gathered from user's input

FromAddressRight	From Address Right, gathered from user's input
ToAddressRight	To Address Right, gathered from user's input

11. Equivalent Table : Alley_Base_Equiv

The Alley_Base_Equiv represents the vertical relationship between alley segment in the application layer and the corresponding roadway segment in the base reference layer. It is a line to line relationship.

Attribute	Description
EquivID	Sequence number, automatically populated
AlleySegID	AlleySegID of the AlleySegment in application layer, automatically populated.
RoadwaySegID	RoadwaySegID of RoadwaySegment in the base reference layer, automatically populated.
Status	1 if active, 0 if inactive, automatically populated.
UpdateTimeStamp	Automatically populated with SysDate

12. Feature Class: DriveSegment

The Drive segment feature class represents driveways in the application layer. It is generated when a user adds a new Driveway RoadwaySegment. It will be retired when the underlining Driveway RoadwaySegment is retired.

Attribute	Description
DriveSegID	Sequence number, automatically populated
SSD_ID	Sequence number, populated with same DriveSegID.
UpdateTimeStamp	Automatically populated with current Date
LifeCycleStatus	1– Set to Active for new features

	2 – Set to Retired if deleted. Automatically populated.
FromNodeID	Automatically populated with NodeID of the base From Node
ToNodeID	Automatically populated with NodeID of the base To Node
BeginMeasure	Begin Measure, automatically generated
EndMeasure	End Measure, automatically generated
InServiceDate	In Service Date, gathered from user's input
Directionality	Directionality, gathered from user's input
Ownership	Ownership, gathered from user's input
Description	Description, gathered from user's input
SegmentWidth	Segment Width, gathered from user's input
DrivewayName	Driveway Name, gathered from user's input
Location	Location, gathered from user's input
AccessControl	Access Control, gathered from user's input

13. Equivalent Table: Driveway_Base_Equiv

The Driveway_Base_Equiv represents the vertical relationship between a driveway segment in the application layer and the corresponding roadway segment in the base reference layer. It is a line to line relationship.

Attribute	Description
EquivID	Sequence number, automatically populated
DrivewaySegID	DrivewaySegID of DriveSegment in application layer, automatically populated.
RoadwaySegID	RoadwaySegID of RoadwaySegment in base layer, automatically populated.
Status	1 if active, 0 if inactive, automatically populated.

UpdateTimestamp	Automatically populated with SysDate

14. Feature Class: RoutingSegment

The routing segment feature class represents routable segments in the application layer. It is generated when a user adds a new RoadwaySegment. It will be retired when the underlining RoadwaySegment is retired.

Attribute	Description
RoutingSegID	Sequence number, automatically populated.
FromNodeID	Automatically populated with NodeID of base FromNode
ToNodeID	Automatically populated with NodeID of base ToNode
UpdateTimestamp	Automatically populated with current Date
LifeCycleStatus	1– Set to Active for new features 2 – Set to Retired if deleted. Automatically populated.
BeginMeasure	Begin Measure, gathered from user's input
EndMeasure	End Measure, gathered from user's input
InServiceDate	In Service Date, gathered from user's input
Directionality	Directionality, gathered from user's input
FunctionalClass	Functional Class, gathered from user's input
Ownership	Ownership, gathered from user's input
Description	Description, gathered from user's input
NumberofLanes	Number of Lanes, gathered from user's input
SegmentWidth	Segment Width, gathered from user's input
StreetID	Street ID, automatically populated
RegisteredName	Street Name, automatically populated
StreetType	Street Type, automatically populated
Quadrant	Quadrant, automatically populated
FromAddressLeft	From Address Left, gathered from user's input
ToAddressLeft	To Address Left, gathered from user's input

FromAddressRight	From Address Right, gathered from user's input
ToAddressRight	To Address Right, gathered from user's input
Comments	Comments, gathered from user's input

15. Equivalent Table: Routing_Base_Equiv

The Routing_Base_Equiv represents the vertical relationship between a routing segment in the application layer and corresponding roadway segment in the base reference layer. It is a line to line relationship.

Attribute	Description
EquivID	Sequence number, automatically populated
RoutingSegID	ID of RoutingSegment in application layer, automatically populated.
RoadwaySegID	ID of RoadwaySegment in the base reference layer, automatically populated
Status	1 if active, 0 if inactive, automatically populated.
UpdateTimestamp	Automatically populated with SysDate

16. Feature Class: RoutingTransportJunction

This feature class represents the intersections of the routable segments in the application layer. It is generated when a new node is created. It will be retired when the underlining node is retired.

Attribute	Description
RoutingJunctionID	Sequence number, automatically populated.
UpdateTimeStamp	Automatically populated with current Date
LifeCycleStatus	1– Set to Active for new features 2 – Set to Retired if deleted. Automatically populated.
InServiceDate	In Service Date, gathered from user's input
NodeID	Automatically populated with Base layer

	NodeID
XCoord	Automatically populated with the X coordinate of the base Node
YCoord	Automatically populated with the Y coordinate of the base Node

ArcSDE Java API and Oracle Java Stored Procedure

1. General description

ESRI provides the ArcSDE Java API, which is an open, high level Programmer's Interface. The ArcSDE Java API can be used to establish a connection to an ArcSDE instance, query and manipulate spatial and attribute data in the ArcSDE Geodatabase.

Oracle Java Stored Procedures are composed of Java Classes and PL/SQL call specifications (See Diagram 1). Oracle Java Virtual Machine (JVM) makes it possible to run Java classes in the Oracle environment. Java methods can be published to SQL through the PL/SQL call specification. The call specification maps Java method names, parameter types, and return types to their SQL counterparts.

Java Stored Procedure allows an application to move heavy operations from the client site to the server site. Diagram 1 shows how Java Stored Procedures are used the in the SSD Geodatabase. The editing of feature classes in the base reference network is achieved through an ArcObjects application. The ArcObjects application can call the PL/SQL Java call specification just like calling regular stored procedures. The PL/SQL call specification will map methods in the java class, which actually work on feature classes and attributes tables. In this prototype, Java Stored Procedures are used to update data in equivalent tables during the editing of feature classes.

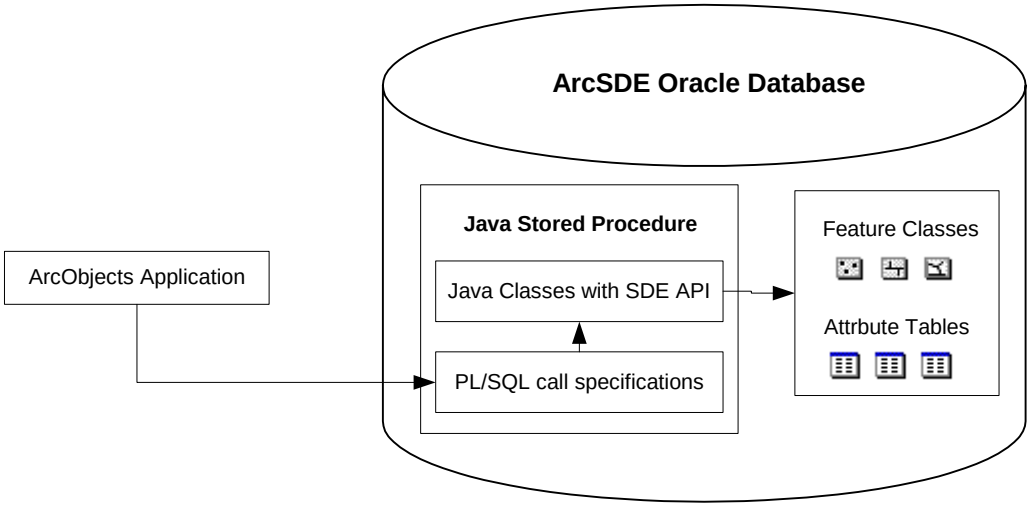


Diagram 1: Architecture of Java Stored Procedure

2. Oracle Database Configuration

To implement Java Stored Procedure, Oracle JVM should be configured correctly. The following shows basic steps of configuring Oracle database and Java Stored Procedure for the testing of the SSD prototype:

1. Create the database, which must have at least 20 MB of `JAVA_POOL_SIZE` and 50 MB of `SHARED_POOL_SIZE`.

2. After the creation of the database, connect the database as SYS and check the JVM:

```
SQL> conn sys/**** as sysdba
Connected.

SQL> select count(*) from user_objects
      where object_type='JAVA CLASS';

  COUNT(*)
----------
      8966
```

The total count of Java schema objects should be greater than 8,000.

All classes should be marked VALID, so the number of invalid classes should be zero, as shown by:

```
SQL> select count(*) from user_objects
  2  where object_type='JAVA CLASS' and status != 'VALID';

  COUNT(*)
----------
         0
```

3. Install ArcSDE8.3 and appropriate patches

4. Recreate SDE user and use SYSTEM use to import data in SDE.DMP into it;

5. Create the DCDOT (or a given name) tablespace and user.
Grant following roles to DCDOT:

```
CONNECT
JAVADEBUGPRIV
JAVAIDPRIV
JAVASYSPRIV
JAVAUSERPRIV
JAVA_ADMIN
JAVA_DEPLOY
RESOURCE
```

Grant following privileges to DCDOT:

```
CREATE PROCEDURE
CREATE SEQUENCE
CREATE SESSION
CREATE TABLE
CREATE TRIGGER
SELECT ANY TABLE
UNLIMITED TABLESPACE
```

6. Use the SYSTEM user to import data in the DCDOT.DMP file into the DCDOT schema.

3. Use cases considered in Java Classes

Java Classes are developed by using the ArcSDE Java API. In this prototype, those java classes are used to update equivalent tables. The following shows two special use cases handled by these java classes.

Two layers, STREETSEGMENT and ROADWAYSEGMENT, are considered in following examples. The thinner solid lines represent original street segments, the thicker solid lines represent the new added streets, and the dotted lines represent driveway segments. A solid circle represents the intersection between two streets, and an empty circle represents the intersection between the street and the driveway.

In diagram 2, before editing, there has only one street segment in StreetSegment, however there have two roadway segments in RoadwaySegment because of the intersection between the street and the driveway. After the addition of a new street segment (the thicker line), original segments in both StreetSegment and RoadwaySegment will be splitted. The java call specification used to add splitted segment information into the STREET_BASE_EQUIV table is

UPDATE_STREET_BASE_EQUIV_P (Old_RoadwayID number, New_RoadwayIDs varchar2, Old_StreetID number, New_StreetIDs varchar2)
Old_RoadwayID: one original Roadway Segment ID;
New_RoadwayIDs: two or more new Roadway Segment IDs generated after editing;
Old_StreetID: one original Street Segment ID;

New_StreetIDs: two or more Street Segment IDs generated after editing;

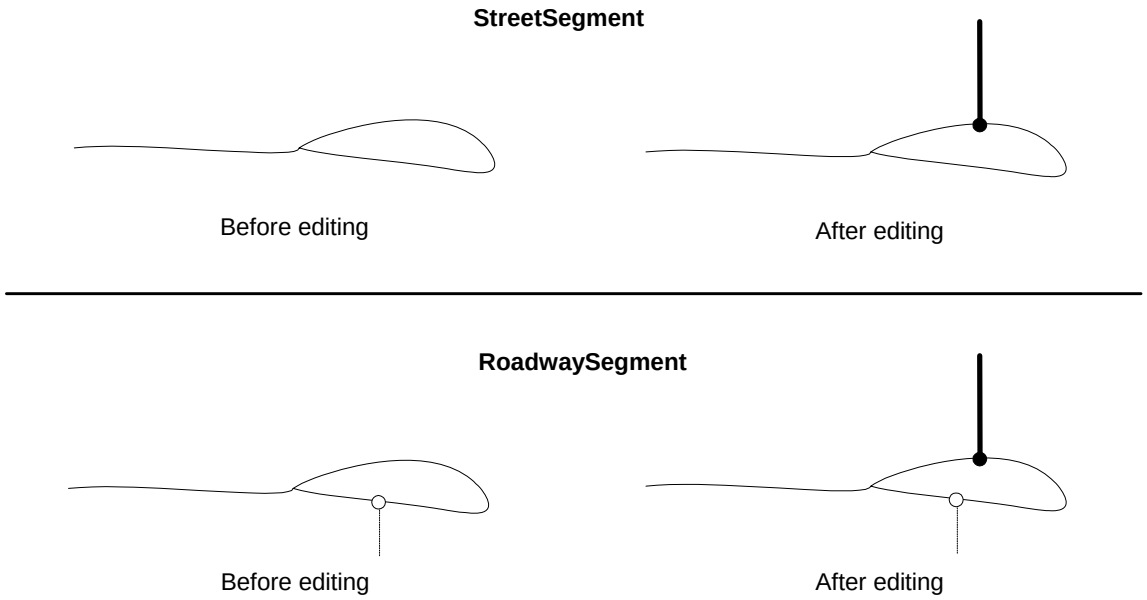


Diagram 2: Street segment editing example1.

When appropriate parameters are passed to UPDATE_STREET_BASE_EQUIV_P, all the splitted segments will be matched and the STREET_BASE_EQUIV table will be updated.

Diagram 3 shows that both original and new added features can be splitted into more than two segments during the addition of ONE street. The new street segment (the W-shaped thicker line) splits the original segment and itself into more than two segments. When the UPDATE_STREET_BASE_EQUIV_P and ADD_NEW_STREET_EQUIV_P java call specifications are called, all matched segments will be found and the results will inserted into STREET_BASE_EQUIV.

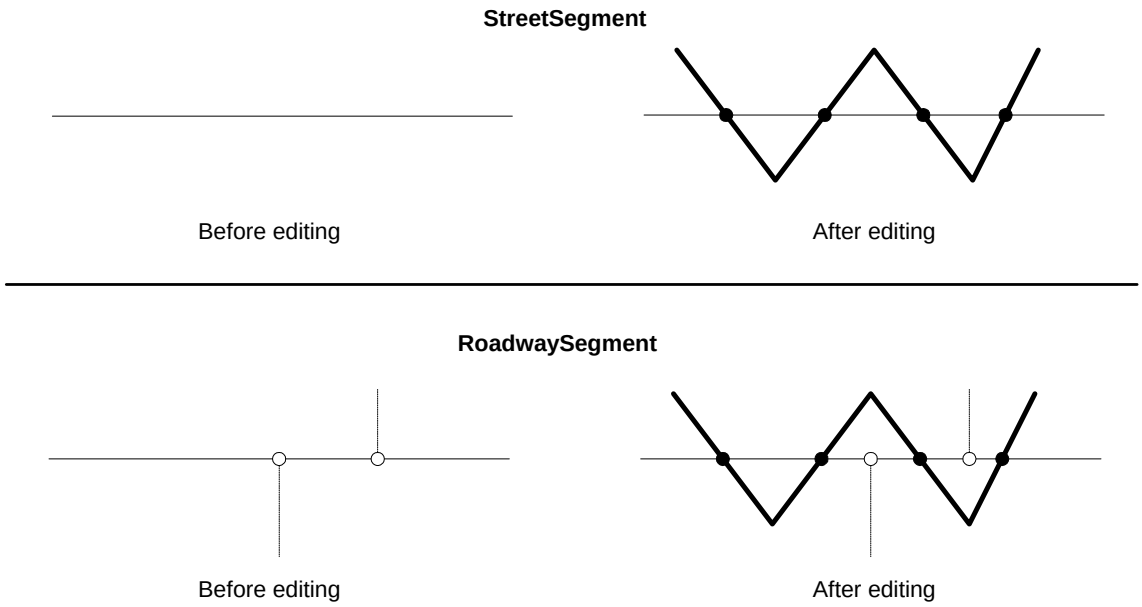


Diagram 2: Street segment editing example2.

4. Java classes and stored procedures

The following table lists specifications of java calls and stored procedures used in this application. For each java call specification, you can see a java class in the “Java Class” column.

For alley, driveway, service road, street, and routing road, two java classes are used to update each equivalent table. One is used to add splitted (original) segment information, and the other is used to add new added segment information into the equivalent table.

Java Call or Stored Procedure Specification	Comments	Java Class
Add_New_Alley_Equiv_P(New_RoadwayIDs varchar2, New_AlleyIDs varchar2, server_name varchar2, sde_instance number,user_name varchar2, pwd varchar2)	Add new alley segment information into ALLEY_BASE_EQUIV	Add_New_Alley_Equiv_J
Add_New_Driveway_Equiv_P(New_RoadwayIDs varchar2, New_DrivewayIDs varchar2, server_name varchar2, sde_instance number, user_name varchar2, pwd varchar2)	Add new driveway segment information into DRIVEWAY_BASE_EQUIV	Add_New_Driveway_Equiv_J
Add_New_Route_Equiv_P(New_RoadwayIDs varchar2,New_RouteIDs varchar2,server_name varchar2,sde_instance number,user_name varchar2,pwd varchar2)	Add new routing segment information into ROUTING_BASE_EQUIV	Add_New_Route_Equiv_J
Add_New_SRoad_Equiv_P(New_RoadwayIDs varchar2,New_StreetIDs varchar2, server_name varchar2,sde_instance number,user_name varchar2,pwd varchar2)	Add new service road information into SERVICEROAD_BASE_EQUIV	Add_New_SRoad_Equiv_J
Add_New_Street_Equiv_P(New_RoadwayIDs varchar2,New_StreetIDs varchar2, server_name varchar2,sde_instance number,user_name varchar2,pwd varchar2)	Add new street information into STREET_BASE_EQUIV	Add_New_Street_Equiv_J
Update_Alley_Base_Equiv_P(Old_RoadwayID number,New_RoadwayIDs varchar2, Old_AlleyID number,New_AlleytIDs varchar2, server_name varchar2,sde_instance number,user_name varchar2,pwd varchar2)	Add splitted alley information into ALLEY_BASE_EQUIV	Update_Alley_Base_Equiv_J
Update_Driveway_Base_Equiv_P(Old_RoadwayID number, New_RoadwayIDs varchar2, Old_DriveID number,New_DriveIDs varchar2, server_name varchar2,sde_instance number,user_name varchar2,pwd varchar2)	Add splitted driveway information into DRIVEWAY_BASE_EQUIV	Update_Driveway_Base_Equiv_J
UPDATE_INTERSECTION_EQUIV_P(node_id number, intersectionID number, intersectTranSegID number, measure number, server_name varchar2, sde_instance number, user_name varchar2, pwd varchar2)	Update the INTERSECTION_EQUIV table	Update_Intersection_Equiv_J
UPDATE_INTERSECT_BASE_EQUIV_P (IntersectPointID number, IntersectID number)	Add intersection relationship between street and roadway segments into INTERSECTION_BASE_EQUIV	
UPDATE_RAMP_BASE_EQUIV_P(OldRampSID number, RampSID number, STranSegID number)	Update the RAMP_BASE_EQUIV table	
Update_Route_Base_Equiv_P(Old_RoadwayID number,New_RoadwayIDs varchar2, Old_RouteID number,New_RouteIDs varchar2, server_name varchar2,sde_instance number,user_name varchar2,pwd varchar2)	Add splitted routing segment information into ROUTING_BASE_EQUIV	Update_Route_Base_Equiv_J
Update_SRoad_Base_Equiv_P(Old_RoadwayID number,New_RoadwayIDs varchar2, Old_StreetID number,New_StreetIDs varchar2, server_name varchar2,sde_instance number,user_name varchar2,pwd varchar2)	Add splitted service road information into SERVICEROAD_BASE_EQUIV	Update_SRoad_Base_Equiv_J
Update_StreetInter_Equiv_P(intersectPointID number, streetID number, measure number,server_name varchar2,sde_instance number,user_name	Update the STREETINTERSECTION_EQUIV table	Update_StreetIntersection_Equiv_J

varchar2,pwd varchar2)		
Update_Street_Base_Equiv_P(Old_RoadwayID number,New_RoadwayIDs varchar2, Old_StreetID number,New_StreetIDs varchar2, server_name varchar2, sde_instance number,user_name varchar2,pwd varchar2)	Add splitted street information into STREET_BASE_EQUIV	Update_Street_Base_Equiv_J