

Data Standards and Definitions
and
MIRE FDE Crosswalk Tables

Prepared by:

UC Berkeley Safe Transportation Research and Education Center (SafeTREC)
Authors: Jill Cooper, Offer Grembek, SangHyouk Oum, Afsaneh Yavari

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MIRE FDE Data Governance, Data Collection, and Integration
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1. Introduction

As part of Agreement 50A0066, UC Berkeley SafeTREC has developed a pilot uniform data model, a data dictionary of Model Inventory of Roadway Elements (MIRE) 2.0 Fundamental Data Elements (FDE) and additional supporting elements necessary to support and populate the FDEs in a modern database environment, and crosswalk tables to reference elements across different databases. Together these items can provide guidance for local agencies collecting data and any agencies attempting to integrate their data into a standardized system.

Data was gathered from 13 local, regional, and tribal through surveys and interviews administered between Fall 2020 and Spring 2021.

2. MIRE FDE Data Standards and Data Dictionary

California's Model Inventory of Roadway Elements (MIRE) Fundamental Data Elements (FDE) data dictionary includes all MIRE 2.0 FDEs and additional supporting elements necessary to support and populate the FDEs in a modern database environment. The data dictionary outlines the datatype, description and possible values for each of the data elements by first referencing the Highway Performance Monitoring System (HPMS) or, alternatively MIRE 2.0 in the absence of a corresponding HPMS element. HPMS was determined to be the default standard based on guidance from the Federal Highway Administration (FHWA).

A listing of all MIRE 2.0 definitions is available at:

<https://safety.fhwa.dot.gov/rsdp/downloads/fhwasa17048.pdf>.

HPMS Field manual is available at:

<https://www.fhwa.dot.gov/policyinformation/hpms/fieldmanual/>

2.1 Roadway Segments

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
Segment Identifier (12)	Yes	segment_id	Varchar (50)	Unique segment identifier	HPMS (Field 3)	Derived from other elements (e.g., combination of route number, county location and beginning and ending milepoints).
County Code (2)		county_code	Varchar (3)	County code	HPMS (63)	County FIPS Code.
Route Number (8)	Yes	route_number	Char (3)	The signed route number	HPMS (17)	Signed numeric value for the roadway segment.
Route/Street Name (9)	Yes	route_name	Varchar (50)	The route or street name, where different from Route Number (8).	HPMS (20)	The alphanumeric route or street name.
Federal-aid (21)	Yes	federal_aid	Integer (1)	Indicates the system on which the route is located.	MIRE	1. Route is non Federal-aid. 2. Route is Federal-aid, but not on National Highway System (NHS) (i.e., all non-NHS routes functionally classified as Interstate, Other Freeways & Expressways, Other Principal Arterials, Minor Arterials, Major Collectors, and Urban Minor Collectors). 3. Route is on NHS.
Route Type (22)	Yes	route_type	Integer	Federal-aid/NHS route type	HPMS	1. Non-Connector NHS

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
			(1)		(64)	2. Major Airport 3. Major Port Facility 4. Major Amtrak Station 5. Major Rail/Truck Terminal 6. Major Inter City Bus Terminal 7. Major Public Transportation or Multi-Modal Passenger Terminal 8. Major Pipeline Terminal 9. Major Ferry Terminal
Rural/Urban Designation (20)	Yes	urban_code	Integer (5)	The rural or urban designation based on Census urban boundary and population	HPMS (2)	99999. Rural 99998. Small Urban *Use Census Urban Area Codes for Small and Large Urbanized areas.
Surface Type (24)	Yes	surface_type	Integer (2)	The surface type of the segment.	HPMS (49)	1. Unpaved 2. Bituminous 3. JPCP – Jointed Plain Concrete Pavement 4. JRCP – Jointed Reinforced Concrete Pavement 5. CRCP – Continuously Reinforced Concrete Pavement 6. Asphalt-Concrete (AC) Overlay over Existing AC Pavement 7. AC Overlay over Existing Jointed Concrete Pavement

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
						8. AC (Bi Overlay over Existing CRCP) 9. Unbonded Jointed Concrete Overlay on Portland Cement Concrete (PCC) Pavements 10. Unbonded CRCP Overlay on PCC Pavements 11. Bonded PCC Overlays on PCC Pavements 12. Other
Begin Point Segment Descriptor (10)	Yes	begin_point	Decimal (8,3)	Location information defining the beginning of the segment.	HPMS (Field 4)	Enter a decimal value to the nearest thousandth of a mile.
End Point Segment Descriptor (11)	Yes	end_point	Decimal (8,3)	Location information defining the end of the segment.	HPMS (Field 5)	Enter a decimal value to the nearest thousandth of a mile.
Segment Length (13)	Yes	segment_length	Decimal (8,3)	The length of the segment.	HPMS (Field 7)	Code the length in decimal format to the nearest thousandth of a mile.
Direction of Inventory (18)	Yes	direction_of_inventory	Integer (1)	Direction of inventory if divided roads are inventoried in each direction.	MIRE	1. Predominate compass direction (e.g. North, South, East, West) – if roads are inventoried in each direction usually due to different characteristics on each roadway. 2. Both – if inventoried in only one direction (e.g. the

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
						inventory applies to both directions of a single-carriageway roadway)
Functional Class (19)	Yes	functional_class	Integer (1)	The FHWA approved Functional Classification System.	HPMS (1)	1. Interstate 2. Principal arterial other freeways and expressways 3. Principal arterial other 4. Minor arterial 5. Major collector 6. Minor collector 7. Local
Median Type (55)	Yes	median_type	Integer (1)	The type of median present on the segment.	MIRE	1. Undivided 2. Flush paved median (at least 4 ft in width) 3. Raised median 4. Depressed median 5. Two-way left-turn lane 6. Railroad or rapid transit 7. Divided, separate grades without retaining wall 8. Divided, separate grades with retaining wall 9. Other divided
Access Control (23)	Yes	access_control	Integer (1)	The degree of access control for a given section of road.	HPMS (5)	1. Full access control 2. Partial access control 3. No access control

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
One/Two-Way Operations (93)	Yes	segment_ operations	Integer (1)	Indication of whether the segment operates as a one- or two-way roadway.	HPMS (3)	1. One-Way Roadway 2. Two-Way Roadway 4. Ramp 5. Non-Mainline 6. Non-Inventory Direction 7. Planned/Unbuild
Number of Through Lanes (32)	Yes	through_lanes	Integer (2)	The total number of through lanes on the segment. It is the number of through lanes in the direction of inventory. If the road is inventoried in both directions together, this would be the number of through lanes in both directions. If the road is inventoried separately for each direction, this would be the number of through lanes in one single direction.	HPMS (7)	Numeric
Annual Average Daily Traffic (AADT) (81)	Yes	segment_aadt	Integer (6)	AADT value to represent the current data year. For two-way facilities, provide the AADT for both directions; provide the directional AADT if part of a one-way couplet or for one-way streets.	HPMS (21)	Vehicles per day

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
AADT Year (82)	Yes	segment_aadt_year	Integer (4)	Year of AADT.	MIRE	Year 9999 - Unknown
Type of Government Ownership (4)	Yes	segment_owner ship	Integer (2)	The entity that has legal ownership of a roadway.	HPMS (6)	<ul style="list-style-type: none"> 1. State Hwy Agency. 2. County Hwy Agency. 3. Town or Township Hwy Agency. 4. City or Municipal Hwy Agency. 11. State Park, Forest, or Reservation Agency. 12. Local Park, Forest, or Reservation Agency. 21. Other State Agency. 25. Other Local Agency. 26. Private (other than Railroad). 27. Railroad. 31. State Toll Authority. 32. Local Toll Authority. 40. Other Public Instrumentality (e.g., Airport, School, University). 50. Indian Tribe Nation. 60. Other Federal Agency. 62. Bureau of Indian Affairs. 63. Bureau of Fish and Wildlife. 64. U.S. Forest Service. 66. National Park Service.

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
						67. Tennessee Valley Authority. 68. Bureau of Land Management. 69. Bureau of Reclamation. 70. Corps of Engineers. 72. Air Force. 73. Navy/Marines. 74. Army. 80. Other.

2.2 Intersections

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
Unique Junction Identifier (110)	Yes	intersection_id	Varchar (50)	A unique junction identifier	MIRE	User defined (e.g., node number, LRS of primary route, etc.)
Location Identifier for Road 1 Crossing Point (112)	Yes	crossing_ segment_id_1	Varchar (50)	Location of the center of the junction on the first intersecting route (e.g. route milepost). Note that if the Junction File is a spatial data file, this would be the coordinates and would be	MIRE	Route and location descriptors (e.g., route and milepoint or route and spatial coordinates). Note: Must be consistent with other MIRE files for linkage.

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
				the same for all crossing roads.		
Location Identifier for Road 2 Crossing Point (113)	Yes	crossing_segment_id_2	Varchar (50)	Location of the center of the junction on the second intersecting route (e.g. route milepost). Note that in a spatial data system, this would be the same as Element 112. Location Identifier for Road 1 Crossing Point. Not applicable if intersecting route is not an inventoried road (i.e., a railroad or bicycle path).	MIRE	Route and location descriptors (e.g., route and milepoint or route and spatial coordinates).
Intersection/Junction Geometry (116)	Yes	intersection_geometry	Char (2)	The type of geometric configuration that best describes the intersection/junction.	MIRE	<ol style="list-style-type: none"> 1. T-Intersection 2. Y-Intersection 3. Cross-Intersection (four legs) 4. Five or more legs and not circular 5. Roundabout 6. Other circular intersection (e.g., rotaries, neighborhood traffic circles) 7. Midblock pedestrian crossing 8. Restricted crossing U-turn (i.e., RCUT, J-turn, Superstreet) intersection

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
						9. Median U-turn (i.e., MUT, Michigan Left, Thru-turn) intersection 10. Displaced left-turn (i.e., DLT, continuous flow, CFI) intersection 11. Jughandle (i.e., New Jersey jughandle) intersection 12. Continuous green T intersection 13. Quadrant (i.e., quadrant roadway) intersection 14. Other
Intersection/ Junction Traffic Control (121)	Yes	intersection_ traffic_control	Char (1)	Traffic control present at intersection/junction.	MIRE	1. Uncontrolled 2. Two-way stop 3. All-way stop 4. Yield sign 5. Signalized 6. Pedestrian Hybrid Beacon (PHB or High-Intensity Activated Crosswalk [HAWK]) 7. Flash Beacon (include Rectangular Rapid Flash Beacon) 8. Railroad crossing, gates and flashing lights 9. Railroad crossing, flashing lights only 10. Railroad crossing, stop-sign controlled

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
						11. Railroad crossing, crossbucks only 12. Other

2.3 Intersection Legs

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
Unique Approach Identifier (129)	Yes	approach_id	Varchar (50)	A unique identifier for each approach of an intersection.	MIRE	Any identifier that is unique for each approach within a single intersection (e.g., sequential numbers or letters, compass directions, "clock hours"). SHOULD MATCH SEGMENT IDENTIFER (12)
Intersection Identifier for this Approach (128)		approach_intersection_id	Varchar (50)	The unique numeric identifier assigned to the intersection that includes this approach (see Intersection Unique Junction Identifier (110)). This element provides linkage to the basic intersection information and to all other approaches.	MIRE	The intersection identifier entered in Intersection Element 110 - Unique Junction Identifier.

Approach AADT (130)	Yes	approach_aadt	Integer (6)	The AADT on the approach leg of the intersection/junction.	MIRE	Vehicles per day
Approach AADT Year (131)	Yes	approach_aadt_year	Integer (4)	The year of the AADT on the approach leg of the intersection/junction.	MIRE	Year 9999 - Unknown

2.4 Interchanges

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
Unique Interchange Identifier (168)	Yes	interchange_id	Varchar (50)	Unique identifier for each interchange.	MIRE	User defined (e.g., node number, LRS of primary route, exit numbers, etc.)
Interchange Type (172)	Yes	interchange_type	Char(1)	Type of interchange.	MIRE	<ol style="list-style-type: none"> 1. Diamond 2. Full cloverleaf 3. Partial cloverleaf 4. Trumpet 5. Three-leg directional 6. Four-leg all-directional 7. Semi-directional 8. Single entrances and/or exits (partial interchange) 9. Single point interchange (SPI) 10. Diverging diamond (i.e., DDI, double-crossover diamond, DCD) interchange 11. Double roundabout (i.e.,

						double raindrop) interchange 12. Single roundabout (i.e., single raindrop) interchange 13. Quadrant 14. Other
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2.5 Ramps

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
Unique Ramp Identifier (176)	Yes	ramp_id	Varchar (50)	An identifier for each ramp that is part of a given interchange. This defines which ramp the following elements are describing.	MIRE	Alphanumeric (e.g., each set of interchange ramps could begin with "1" or "A", each ramp could be identified by its route and exit number, etc.).
Interchange Identifier for this Ramp (175)		ramp_interchnage_id	Varchar (50)	The unique numeric identifier assigned to the interchange that this ramp is part of. See Element 168. Unique Interchange Identifier. This provides linkage to the basic interchange information and to all other ramps.	MIRE	The interchange identifier entered in Element 168. Unique Interchange Identifier.
Location Identifier for Roadway at Beginning	Yes	begin_ramp_segment_id	Varchar (50)	Location on the roadway at the beginning ramp terminal (e.g. route-milepost for that roadway)	MIRE	Route and location descriptors (e.g., route and milepoint or spatial coordinates) for the

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
Ramp Terminal (187)				if the ramp connects with a roadway at that point.		roadway intersected at the beginning ramp terminal. Must be consistent with other MIRE files for linkage. See point D in Figure 26 on page 134 for additional detail. In this example the Location Identifier for Roadway at Beginning Ramp Terminal = MP 128.06.
Location Identifier for Roadway at Ending Ramp Terminal (191)	Yes	end_ramp_segment_id	Varchar (50)	Location on the roadway at the ending ramp terminal (e.g. route-milepost for that roadway) if the ramp connects with a roadway at that point.	MIRE	Route and location descriptors (e.g., route and milepoint or spatial coordinates) for the roadway intersected at the ending ramp terminal. Must be consistent with other MIRE files for linkage. See point E in Figure 26 on page 134 for additional detail. In this example the Location Identifier for Roadway at Ending Ramp Terminal = MP 126.77.
Ramp Length (177)	Yes	ramp_length	Decimal (8,3)	Length of ramp. The length should be measured from taper to taper.	HPMS (Field 7)	Code the length in decimal format to the nearest thousandth of a mile.
Roadway Type at Beginning Ramp Terminal (185)	Yes	begin_ramp_roadway_type	Char (1)	A ramp is described by a beginning and ending ramp terminal in the	MIRE	1. Freeway 2. Non-freeway (surface street)

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
				direction of ramp traffic flow or the direction of inventory. This element describes the type of roadway intersecting with the ramp at the beginning terminal.		3. Other Ramp 4. Frontage road 5. Other 0. Not Stated
Roadway Type at Ending Ramp Terminal (189)	Yes	end_ramp_roadway_type	Char (1)	A ramp is described by a beginning and ending ramp terminal in the direction of inventory. This element describes the type of roadway intersecting with the ramp at the ending terminal.	MIRE	1. Freeway 2. Non-freeway (surface street) 3. Other Ramp 4. Frontage road 5. Other
Ramp AADT (181)	Yes	ramp_aadt	Integer (6)	AADT on ramp	MIRE	Vehicles per day
Year of Ramp AADT (182)	Yes	ramp_aadt_year	Integer (4)	Year of AADT on ramp.	MIRE	Year 9999 - Unknown
Functional Class (19)	Yes	ramp_functional_class	Integer (1)		HPMS (1)	1. Interstate 2. Principal arterial other freeways and expressways 3. Principal arterial other 4. Minor arterial 5. Major collector 6. Minor collector 7. Local
Type of Government Ownership (4)	Yes	ramp_ownership	Integer (2)		HPMS (4)	1. State Hwy Agency. 2. County Hwy Agency.

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
						3. Town or Township Hwy Agency. 4. City or Municipal Hwy Agency. 11. State Park, Forest, or Reservation Agency. 12. Local Park, Forest, or Reservation Agency. 21. Other State Agency. 25. Other Local Agency. 26. Private (other than Railroad). 27. Railroad. 31. State Toll Authority. 32. Local Toll Authority. 40. Other Public Instrumentality (e.g., Airport, School, University). 50. Indian Tribe Nation. 60. Other Federal Agency. 62. Bureau of Indian Affairs. 63. Bureau of Fish and Wildlife. 64. U.S. Forest Service. 66. National Park Service. 67. Tennessee Valley Authority. 68. Bureau of Land Management. 69. Bureau of Reclamation.

Item Name (MIRE #)	FDE	Variable Name	Datatype (Length)	Description	Ref.	Possible Values
						70. Corps of Engineers. 72. Air Force. 73. Navy/Marines. 74. Army. 80. Other.

3. Pilot Uniform Data Model

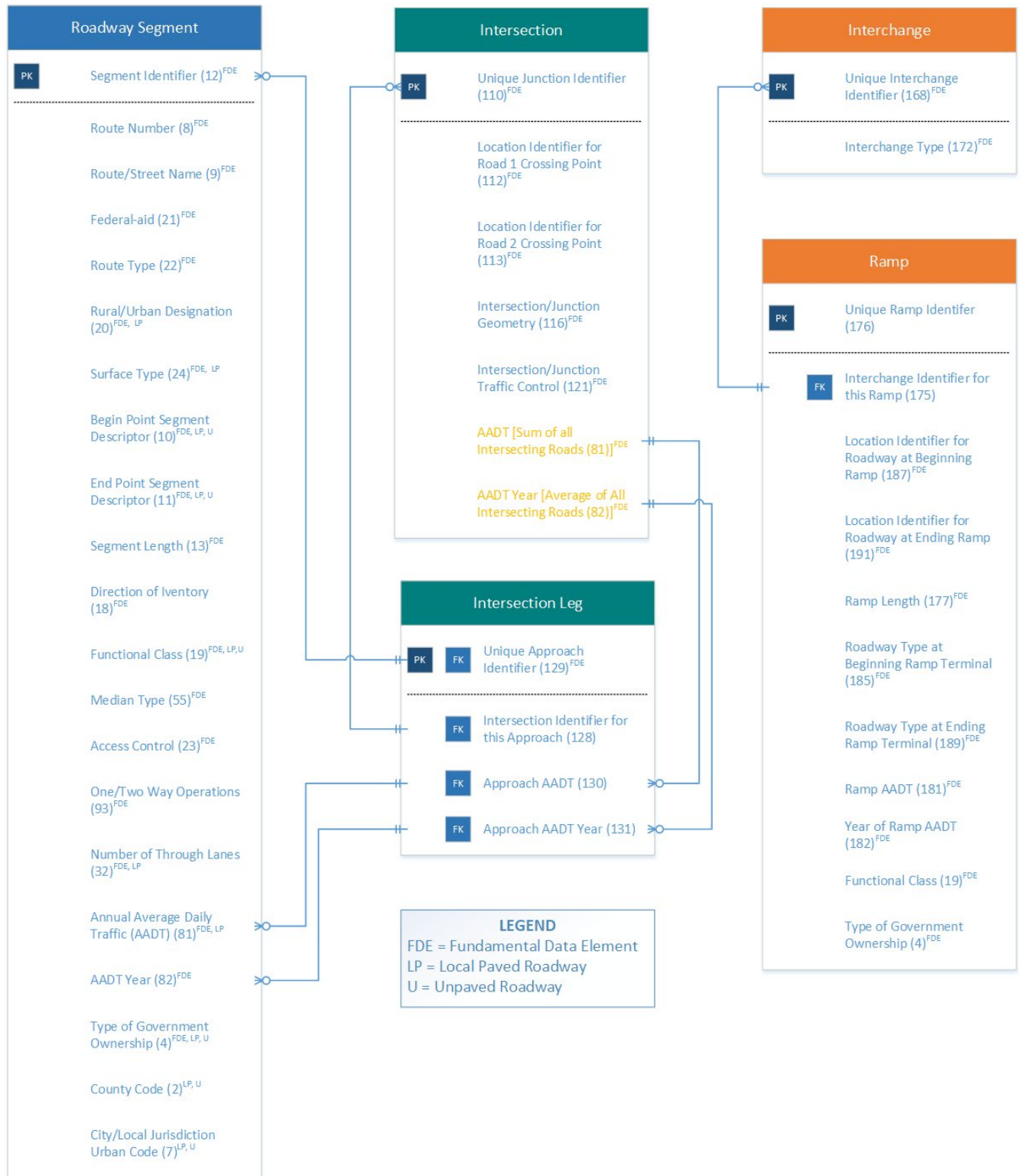
The pilot uniform data model can be used to categorize and show links between the MIRE 2.0 FDEs and additional suggested elements in preparation for data collection among pilot agencies (See Figure 1.)

MIRE elements have been grouped into six simplified data types in version 2.0:

- I. **Segment**
- II. **Intersection**
- III. **Intersection Leg**
- IV. **Interchange/ramp**
- V. Horizontal Curve
- VI. Vertical Grade

The bolded data types include an FDE and form the foundation for the pilot Uniform Data Model. The model includes each FDE within the data type and additional suggested elements to support those FDEs. The four data types have been grouped into three main categories with subcategories as described below. MIRE element numbers are shown in parentheses for each reference.

Figure 1. MIRE FDE Uniform Data Model



3.1 Roadway Segment Tables

The roadway segment tables category consists solely of the roadway segment table.

3.1.1 Roadway Segment Table

Primary Key: Segment Identifier (12)

A segment in this table is defined by the route number (8), the route/street name (9) and the begin point (10) and end point segment descriptors (11). The county code (2) and city/local jurisdiction urban code (7) are additional suggested elements to incorporate into the segment identifier (12). Additional elements in the roadway segment table include: federal-aid (21), rural/urban designation (20), surface type (24), segment length (13), direction of inventory (18), functional class (19), median type (55), access control (23), one/two-way operations (93), number of through lanes (32), annual average daily traffic (AADT) (81), AADT year (82), and type of government ownership (4). The roadway segment table is linked to the intersection leg table by the segment identifier (12). Additionally, the AADT and AADT year elements are used to populate the intersection leg approach AADT and approach AADT year elements, respectively.

3.2 Intersection/Intersection Leg Tables

The intersection and intersection leg tables are grouped in this category. The intersections will form a one-to-many relationship with the intersection legs. The intersection legs should have a one-to-one relationship with the roadway segments.

3.2.1 Intersection Table

Primary Key: Unique Junction Identifier (110)

The intersection table describes unique junctions along the roadway segments that are described by the location identifier for the road 1 crossing point (112) and location identifier for the road 2 crossing point (113). The intersection table contains the intersection/junction geometry (116) and the intersection/junction traffic control (121) elements. In addition, the intersection table is expected to contain cumulative value elements for AADT (81) and AADT Year (82) for the sum or average of all intersecting roads respectively. The intersection table is linked to the intersection leg table by the unique junction identifier.

3.2.2 Intersection Leg Table

Primary Key: Unique Approach Identifier (129)

The intersection leg table contains two or more records for each intersection. The intersection legs are linked to the roadway segments by the unique approach identifier (129) and to the intersections by the intersection identifier for this approach (128). The Approach AADT (130) and Approach AADT Year (131) elements are contained in this table and form additional links to the roadway segment and intersection tables. The approach AADT is expected to link to the roadway segment AADT and then be summed for all legs to populate the intersection table. The approach AADT year is also expected to link to segment AADT and then be averaged for all legs to populate the intersection table.

3.3 Ramp/Interchange Tables

The ramp/interchange tables combine to describe each interchange and its respective ramps separately from the roadway segment and intersection tables. Interchanges form a one-to-many relationship with the ramps.

3.3.1 Interchange Table

Primary Key: Unique Interchange Identifier (168)

The interchange table is defined by the unique interchange identifier (168) and contains the interchange type (172) element. Defining an interchange is essential for categorizing the associated ramps. Each interchange links to one or more ramps by the unique interchange identifier.

3.3.2 Ramp Table

Primary Key: Unique Ramp Identifier (176)

The ramp table describes each unique ramp and its related elements. Ramps are defined by the location identifier for roadway at beginning ramp (187) and the location identifier for roadway at ending ramp (191). The table also contains the ramp length (177), roadway type at beginning ramp terminal (185), roadway type at ending ramp terminal (189), ramp AADT (181), year of ramp AADT (182). The functional class (19) and type of government ownership (4) should be defined by the adjacent roadway segment. The ramp table is linked to the interchange table by the interchange identifier for this ramp (175).

4. MIRE FDE Crosswalk Tables

How to Interpret

This document provides a complementary resource to the data dictionary through:

1. summary crosswalk tables of available databases for a specific element (e.g. MIRE 2.0, HPMS, Caltrans TSN, Locals), and
2. individual crosswalk tables to identify where each element is referenced in the MIRE 2.0 or HPMS databases.

Each MIRE 2.0 FDE element is listed with the definition, reference database and element (e.g. HPMS Urban Code (2)), summary crosswalk table and a table of possible values from the reference database. A description and instructions for interpreting the summary crosswalk tables and individual crosswalk tables is provided below.

Summary crosswalk table

The summary crosswalk table for each element shows the element name and element number when available. MIRE 2.0, HPMS and Caltrans Transportation System Network (TSN) are the most frequent databases referenced in the summary table. Only MIRE 2.0 and HPMS, however, provide an element number; therefore, that row contains a Not Available (N/A) value for all the other databases. Local agencies are shown after MIRE 2.0, HPMS and TSN if the locals stated data was collected for the specific element. For local agencies, there may or may not be a specific element name, depending on the survey response. An N/A value is entered for those element names. Additionally, the element name may refer to a database field name or a descriptive name for the element from other documentation. Finally, the HPMS database is only available for roadway segments, not intersection or ramp interchange related elements and therefore a No Matching Element value is entered for HPMS for those types of infrastructure.

The summary crosswalk table itemizes which databases are available for the given element that will be subsequently referenced in the individual crosswalk tables. Instructions to interpret the individual crosswalk tables are provided in the next section.

Individual element crosswalk tables

For each MIRE 2.0 FDE, a table is provided showing the possible values of the reference database for the element. Below each Possible Values table, individual crosswalk tables are provided, depending on the available corresponding databases for the element. The first column of the Possible Values table shows the reference database (e.g. MIRE 2.0 value), as do the individual crosswalk tables, depending on their database (e.g. TSN, Local Value, etc.). The second column in all the tables is the description of the value. The individual crosswalk tables then have a third column for the crosswalk value,

which means the value from the reference database that best matches the corresponding table. A “N/A” in the third column means that a match to the reference table has not been determined for the corresponding table value.

Example: For example, refer to the *One/Two Way Operations (93)* element. This element states in the definition that the reference is from the *HPMS Facility Type (3)* element and the possible values from HPMS are listed. The possible values table shown is:

HPMS Value	Description
1	One-Way Roadway
2	Two-Way Roadway
4	Ramp
5	Non-Mainline
6	Non-Inventory Direction
7	Planned/Unbuild

Below the possible values table, there are seven additional crosswalks, Table 1 – MIRE 2.0, Table 2 - TSN and four local databases. The MIRE 2.0, TSN and one of the local databases are shown and described below.

Table 1: MIRE 2.0

MIRE 2.0 Value	Description	Crosswalk
1	One-Way Roadway	1 – One-Way roadway
2	Two-Way Roadway	2 – Two-Way roadway
3	One direction of travel for divided roadways	6 – Non-Inventory Direction

Table 1 – MIRE 2.0 states in the first column header the values are from MIRE 2.0. There are only three (3) values in MIRE 2.0 (1 – One-way roadway, 2 – two-way roadway, and 3 – one direction of travel for divided roadways). Based on those values, the third Crosswalk column has reference values entered from the HPMS table used for the element. The MIRE 2.0 description of one-way roadway matches the HPMS (1 – one-way roadway) and

the two-way roadway matches the HPMS (2 – two-way roadway) and the one direction of travel for divided highways matches the HPMS (6 Non-Inventory Direction).

Table 2: TSN

TSN Value	Description	Crosswalk
C	Conventional - No Access Control	N/A
E	Expressway - Partial Access Control	N/A
F	Freeway - Full Access Control	N/A
S	One-Way City Street - No Access Control	N/A

Table 2 –TSN shows the TSN database values. However, it is not clear how the descriptions match to the possible values in the HPMS table and therefore the crosswalk values are all entered as N/A. It is possible different interpretations of the data in the future will allow matching some of these values to HPMS.

Table 3: SANDAG (Imperial Beach)

Local Value	Description	Crosswalk
F	Addresses increases in same direction as traffic flow	1 – One-Way Roadway
T	Addresses increase in opposite direction of traffic flow	2 – Two-Way Roadway
B	Two-way streets (default value)	2 – Two-Way Roadway

Tables 3 and above – Local Agency values, for example Table 3 SANDAG (Imperial Beach), is derived from the locally provided data dictionary from the survey. Table 3 SANDAG for one/two-way operations has three possible values (F, T and B). After reviewing the data dictionary and comparing the descriptions, all the local values were able to be matched to HPMS and are shown in the crosswalk column. Local Value F (Addresses increases in same direction as traffic flow) matches to HPMS (1 – One-Way roadway) value while Local Value T (Addresses increase in opposite direction of traffic flow) and Local Value B (Two-way streets) both match to HPMS (2 – Two-way roadway) value.

A final scenario not shown in this example is when the corresponding database table values and descriptions match exactly to the reference table values and descriptions. When that happens, no duplicate corresponding table is shown and instead a text description is included: "Identical values. No crosswalk table necessary."

4.1.1 Segment Identifier (12)

Definition: Unique segment identifier. Reference from HPMS Route ID (Field 3) element.

Possible Values: Derived from other elements (e.g., combination of route number, county location and beginning and ending mileposts).

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	MTC	Kern County	City of Yuba
Element Name	Route ID	Segment Identifier	Segment Element ID	Street-Saver Segment ID	PID	StreetSaver Segment ID
Element Number	Field 3	12	N/A	N/A	N/A	N/A

Dataset	HPMS	San Bernardino County	City of San Ramon	SCAG	Stanislaus County
Element Name	Route ID	N/A	StIDSecID	N/A	Segment Identifier
Element Number	Field 3	N/A	N/A	N/A	N/A

Additional Information:

MTC: Name of the street section plus numerical identification for section of the street

Kern County: Network ID::Branch ID::Section ID

Yuba City: Assigned when creating street segments in the pavement management software.

San Bernardino County: Road number and sequence

City of San Ramon: Combination of StreetID and Section

SCAG: Combination of route number, county/CSA/Air Basin location, facility type, etc.

County Code (2)

Definition: County code. Reference from HPMS.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	County Code	County Code	County Code	County Code
Element Number	63	2	N/A	N/A

Possible Values: County FIPS Code.

4.1.2 Route Number (8)

Definition: The signed route number. Reference from HPMS.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	Route Number	Route Number	Route Number	Route Number
Element Number	17	8	N/A	N/A

Possible Values: Signed numeric value for the roadway segment.

4.1.3 Route/Street Name (9)

Definition: The route or street name, where different from Element 8. Route Number.

Reference from HPMS *Alternative Route Name (20)* element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	Alternative Route Name	Route/Street Name	Route/Street Name	Route/Street Name
Element Number	20	9	N/A	N/A

Possible Values: The alphanumeric route or street name.

4.1.4 Federal-aid (21)

Definition: Indicates the system on which the route is located. Reference from MIRE 2.0 *Federal-aid (21)* element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	MTC	City of Elk Grove	Stanislaus County
Element Name	No Matching Element	Federal-aid	Federal-aid	NHS Checkbox	N/A	Federal-aid
Element Number	No Matching Element	21	N/A	N/A	N/A	N/A

Possible Values:

MIRE 2.0 Value	Description
1	Route is non Federal-aid
2	Route is Federal-aid, but not on National Highway System (NHS) (i.e., all non-NHS routes functionally classified as Interstate, Other Freeways & Expressways, Other Principal Arterials, Minor Arterials, Major Collectors, and Urban Minor Collectors).
3	Route is on NHS.

Table 1: HPMS
No matching element.

Table 2: TSN

TSN Value	Description	Crosswalk
0	None of the Following	N/A
2	In Lieu of Interstate	2
3	In Lieu of Primary	2

Table 3: MTC

Local Value	Description	Crosswalk
N/A	Arterial, NHS Arterial, Not NHS	3 2
N/A	Collector, NHS Collector, Not NHS	3 2
N/A	Local	1

Table 4: City of Elk Grove

Local Value	Description	Crosswalk
A	Arterial	2 OR 3
C	Collector	2 OR 3
O	Other	1
L	Residential/Local	1

Table 5: Stanislaus County

Identical values. No crosswalk table necessary.

4.1.5 Route Type (22)

Definition: Federal-aid/NHS route type. Reference from HPMS National Highway System (64) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	National Highway System	Route Type	NHS	National Highway System
Element Number	64	22	N/A	N/A

Possible Values:

HPMS Value	Description
1	Non-Connector NHS
2	Major Airport
3	Major Port Facility
4	Major Amtrak Station
5	Major Rail/Truck Terminal
6	Major Inter City Bus Terminal
7	Major Public Transportation or Multi-Modal Passenger Terminal
8	Major Pipeline Terminal
9	Major Ferry Terminal

Table 1: MIRE 2.0

Identical values. No crosswalk table necessary.

Table 2: TSN

TSN Value	Description	Crosswalk
INTERSTATE	Eisenhower Interstate System	N/A
O-NHS	Other NHS Routes	N/A
NISR	Non-Interstate STRAHNET Route	N/A
MSC	Major STRAHNET Connector	N/A
IC	Intermodal Connector	N/A
ISC	Intermodal/STRAHNET Connector	N/A
???	Unbuilt NHS Routes	N/A
M21PA	Map-21 Principle Arterial	N/A

Table 3: Stanislaus County

Identical values. No crosswalk table necessary.

4.1.6 Rural/Urban Designation (20)

Definition: The rural or urban designation based on Census urban boundary and population. Reference from HPMS Urban Code (2) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	SCAG	Stanislaus County
Element Name	Urban Code	Rural/Urban Designation	Population Areas	Area Types	Rural/Urban Designation
Element Number	2	20	N/A	N/A	N/A

Possible Values:

HPMS Value	Description
99999	Rural
99998	Urban (Population > 5,000)

Table 1: MIRE 2.0

MIRE 2.0 Value	Description	Crosswalk
1	Rural	99999
2	Urban (population > 5,000)	99998

Table 2: TSN

TSN Value	Description	Crosswalk
99999	Rural Area	99999
99998	Urban (population > 5,000)	99998
<> 99999	Urban Area	99998

Table 3: SCAG

Local Value	Description	Crosswalk
AT 1	Core	99998
AT 2	Central Business District	99998
AT 3	Urban Business District	99998
AT 4	Urban	99998
AT 5	Suburban	99998
AT 6	Rural	99999
AT 7	Mountain	99999

Table 4: Stanislaus County

Local Value	Description	Crosswalk
1	Rural	99999
2	Urban (population > 5,000)	99998

4.1.7 Surface Type (24)

Definition: The surface type of the segment. Reference from MIRE 2.0 element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	MTC	Kern	City of Yuba
Element Name	Surface Type	Surface Type	Surface Type	N/A	Surface Type	N/A
Element Number	49	24	N/A	N/A	N/A	N/A

Dataset	San Bernardino County	City of San Ramon	Elk Grove	Kings County	Stanislaus County
Element Name	N/A	N/A	N/A	N/A	Surface Type
Element Number	N/A	N/A	N/A	N/A	N/A

Possible Values:

MIRE 2.0 Value	Description
1	Unpaved
2	Bituminous
3	JPCP – Jointed Plain Concrete Pavement
4	JRCP – Jointed Reinforced Concrete Pavement
5	CRCP – Continuously Reinforced Concrete Pavement
6	Asphalt-Concrete (AC) Overlay over Existing AC Pavement
7	AC Overlay over Existing Jointed Concrete Pavement
8	AC (Bi Overlay over Existing CRCP)
9	Unbonded Jointed Concrete Overlay on Portland Cement Concrete (PCC) Pavements
10	Unbonded CRCP Overlay on PCC Pavements
11	Bonded PCC Overlays on PCC Pavements
12	Other

Table 1: HPMS

HPMS Value	Description	Crosswalk
1	Unpaved	1
2	Bituminous	2
3	JPCP-Jointed Plain Concrete Pavement	3
4	JRCP-Jointed Reinforced Concrete Pavement	4
5	CRCP-Continuously Reinforced Concrete Pavement	5
6	Asphalt-Concrete (AC) Overlay over Existing AC Pavement	6
7	AC Overlay over Existing Jointed Concrete Pavement	7
8	AC (Bitum. Overlay over Existing CRCP).	8
9	Unbonded Jointed Concrete Overlay on PCC Pavements	9
10	Bonded PCC Overlays on PCC Pavements	11
11	Other (e.g., plank, brick, cobblestone, etc.)	12

Table 2: TSN

TSN Value	Description	Crosswalk
B	Bridge Deck	4
C	Concrete	3
H	Base & Surface >7" Thick	2
M	Base & Surface <7" Thick	2
O	Oiled Earth – Gravel	1
P	Bridge Deck	5
E	Earth	1
F	Undetermined	12
G	Bridge Deck (All Not Codes B or P)	1

Table 3: MTC

Local Value	Description	Crosswalk
AC	Asphalt Concrete	6
AC/AC	Asphalt concrete overlay over existing AC pavement	6
AC/PCC	AC Overlay over Existing Jointed Concrete Pavement	7
PCC	Portland Cement Concrete	3 OR 4
ST	Surface Treated (pavement surface with cold mix or seal treatment without any structural section)	12
Gravel	Gravel road	1

Table 4: Kern County

Local Value	Description	Crosswalk
AC	Asphalt	2
PCC	Concrete	3
GR	Gravel	1
BR	Brick	12

Table 5: City of Yuba

Local Value	Description	Crosswalk
AC	Asphalt Concrete	6
PCC	Portland Cement Concrete	11
AC/AC	Asphalt overlaid on Asphalt	2

Table 6: San Bernardino County

Local Value	Description	Crosswalk
1	Earth and/or Stabilized Earth	1
2	Aggregate Base Course	1
3	Road Mix Surfacing	2
4	Plant Mixed Surfacing	2
5	All Portland Cement concrete surfaces	11

Table 7: City of San Ramon

Local Value	Description	Crosswalk
A	AC - Asphalt Concrete	6
O	AC/AC – Asphalt Concrete/Asphalt Concrete	6
P	PCC – Portland Concrete Cement	11

Table 8: City of Elk Grove

Local Value	Description	Crosswalk
A	Asphalt Concrete (AC)	6
C	PCC Pavement Overlaid with Asphalt Concrete (AC/PCC)	9
O	Asphalt Concrete Overlaid with Asphalt Concrete (AC/AC)	6
P	Portland Cement Concrete	3 OR 4
ST	Surface Treated Pavement e.g. chip seals over subgrade	12
G	Gravel	1

Table 9: Kings County

Local Value	Description	Crosswalk
A	Asphalt Concrete Pavement	6
O	Overlay	6

Table 10: Stanislaus County

Identical values. No crosswalk table necessary.

4.1.8 Begin Point Segment Descriptor (10)

Definition: Location information defining the beginning of the segment. Reference from HPMS Begin Point (Field 4) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	MTC	Kern County	San Bernardino County	Kings County	Stanislaus County
Element Name	Begin Point	Begin Point Segment Descriptor	Begin Postmile	Begin Location	ISTARTX/ ISTARTY	N/A	ST_FROM, Beg Location	Begin Point Segment Descriptor
Element Number	Field 4	10	N/A	N/A	N/A	N/A	N/A	N/A

Possible Values: Enter a decimal value to the nearest thousandth of a mile.

Additional Information:

San Bernardino County

Limits based on Linear Reference System; ESRI State Plane Coordinates.

Kings County

ST_FROM: Begin Point Intersection. Beg Location: Example: Lansing Ave, Kansas Ave.

4.1.9 End Point Segment Descriptor (11)

Definition: Location information defining the end of the segment. Reference from HPMS End Point (Field 5) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	MTC	Kern County	San Bernardino County	Kings County	Stanislaus County
Element Name	End Point	End Point Segment Descriptor	End Postmile	End Location	IENDX/IENDY	N/A	ST_TO, End Location	End Point Segment Descriptor
Element Number	Field 5	11	N/A	N/A	N/A	N/A	N/A	N/A

Possible Values: Enter a decimal value to the nearest thousandth of a mile.

Additional Information:

San Bernardino County

Limits based on Linear Reference System; ESRI State Plane Coordinates.

Kings County

ST_TO: End Point Intersection. End Location: Example: Lansing Ave, Kansas Ave.

4.1.10 Segment Length (13)

Definition: The length of the segment. Reference from HPMS Section Length (Field 7) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	Section Length	Segment Length	Segment Length	Segment Length
Element Number	Field 7	13	N/A	N/A

Possible Values: Code the length in decimal format to the nearest thousandth of a mile.

4.1.11 Direction of Inventory (18)

Definition: Direction of inventory if divided roads are inventoried in each direction.

Reference from MIRE 2.0 *Direction of Inventory (18)* element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	N/A	Direction of Inventory	Cross Section	Direction of Inventory
Element Number	N/A	18	N/A	N/A

Possible Values:

MIRE 2.0 Value	Description
1	Predominate compass direction (e.g. North, South, East, West) – if roads are inventoried in each direction usually due to different characteristics on each roadway.
2	Both – if inventoried in only one direction (e.g. the inventory applies to both directions of a single-carriageway roadway)

Table 1: HPMS
No matching element.

Table 2: TSN
Values not available.

Table 3: Stanislaus County
 Identical values. No crosswalk table necessary.

4.1.12 Functional Class (19)

Definition: The FHWA approved Functional Classification System. Reference from HPMS *Functional System (1)* element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	MTC	SANDAG	Kern County
Element Name	Functional System	Functional Class	Functional Class	Functional Class	FUNCLASS	N/A
Element Number	1	19	N/A	N/A	N/A	N/A

Dataset	San Bernardino County	City of San Ramon	City of Elk Grove	SCAG	Stanislaus County
Element Name	N/A	N/A	N/A	Facility Types	Functional Class
Element Number	N/A	N/A	N/A	N/A	N/A

Possible Values:

HPMS Value	Description
1	Interstate
2	Principal arterial other freeways and expressways
3	Principal arterial other
4	Minor arterial
5	Major collector

6	Minor collector
7	Local

Table 1: MIRE 2.0

Identical values. No crosswalk table necessary.

Table 2: TSN

TSN Value	Description	Crosswalk
0	None	N/A
1	Principal Arterial W/ C/L Prin Arterial	N/A
2	Principal Arterial W/ C/L Minor Arterial	N/A
3	Principal Arterial Non-Connecting Link	3
4	Minor Arterial	4
5	Major Collector	5
6	Minor Collector	6
7	Local	7

Table 3: MTC

Identical values. No crosswalk table necessary.

Table 4: SANDAG (Imperial Beach)

Local Value	Description	Crosswalk
1	Freeway to freeway ramp	1
2	Light (2-lane) collector street	6
3	Rural collector road	5
4	Major road/4-lane major road	5
5	Rural light collector/local road	6 or 7

6	Prime (primary) arterial	3
7	Private street	N/A
8	Recreational parkway	N/A
9	Rural mountain road	3
A	Alley	7
B	Class I bicycle path	N/A
C	Collector/4-lane collector street	5
D	Two-lane major street	5
E	Expressway	2
F	Freeway	2
L	Local street/cul-de-sac	7
M	Military street within base	N/A
P	Paper street	N/A
Q	Undocumented	N/A
R	Freeway/expressway on/off ramp	2
S	Six-lane major street	5
T	Transit way	N/A
U	Unpaved road	N/A
W	Pedestrian way/bikeway	N/A

Table 5: Kern County

Local Value	Description	Crosswalk
H	Highway	3
A	Arterial	4

C	Collector	5 or 6
L	Local	7
D	Dirt	N/A

Table 6: San Bernardino County

Local Value	Description	Crosswalk
A	Arterial	3 or 4
B	Arterial Unconstructed	5 or 6
J	Collector	5 or 6
S	Collector Unconstructed	5 or 6
T	Local/Minor Unconstructed	7
X	Non-maintained	N/A
Y	Non-maintained Open	N/A

Table 7: City of San Ramon

Local Value	Description	Crosswalk
A	Arterial	3 or 4
C	Collector	5 or 6
O	Other – Parking Lots	N/A
R	Residential/Local	7

Table 8: City of Elk Grove

Identical values. No crosswalk table necessary.

Table 9: SCAG

Local Value	Description	Crosswalk
FT10	Freeways	2

FT20	HOV	1 or 2
FT30	Expressway/Parkway	1
FT40	Principal Arterial	2 or 3
FT50	Minor Arterial	4
FT60	Major Collector	5
FT70	Minor Collector	6
FT80	Ramps	2
FT90	Truck lanes	1
FT100	Centroid connector	5

Table 10: Stanislaus County
 Identical values. No crosswalk table necessary.

4.1.13 Median Type (55)

Definition: The type of median present on the segment. Reference from MIRE 2.0 element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	San Bernardino County	Stanislaus County
Element Name	Median Type	Median Type	Median Barrier, Curb & Landscape, Median Width Amt	N/A	Median Type
Element Number	35	55	N/A	N/A	N/A

Possible Values:

MIRE 2.0 Value	Description
1	Undivided
2	Flush paved median (at least 4 ft in width)
3	Raised median
4	Depressed median
5	Two-way left-turn lane
6	Railroad or rapid transit
7	Divided, separate grades without retaining wall
8	Divided, separate grades with retaining wall
9	Other divided

Table 1: HPMS

HPMS Value	Description	Crosswalk
1	None	1
2	Unprotected	2
3	Curbed	9
4	Positive barrier - unspecified	N/A
5	Positive barrier - flexible	N/A
6	Positive barrier - semi-rigid	N/A
7	Positive barrier - rigid	N/A

Table 2: TSN: Median Barrier

TSN Value	Description	Crosswalk
A	Cable Barrier	N/A
B	Cable Barrier w/ Glare Screen	N/A
C	Metal Beam Barrier	N/A
D	Metal Beam Barrier w/ Glare Screen	N/A
E	Concrete Barrier	N/A
F	Concrete Barrier w/ Glare Screen	N/A
G	Bridge Barrier Railing	N/A
H	Chain Link Fence	N/A
J	Guardrail in Median Both Roadway	N/A
K	Guardrail in Median Left Roadway	N/A
L	Guardrail in Median Right Roadway	N/A
M	Two-Way, One Lane Road	N/A
N	Thrie Beam Barrier	N/A
P	Thrie Beam Barrier w/ Glare Screen	N/A
Q	Conc. Barrier, Both Ways Inside Both Shoulders	N/A
R	Cone. Barrier, Left Rdwy Median Shoulder Area	N/A
S	Cone. Barrier, Right Rdwy Median Shoulder Area	N/A
X	External Barriers on Median Type = C or E	N/A
Y	Other Not Included Above	N/A
Z	No Barriers	See CURB & LANDSCAPE

Table 2: TSN: Curb & Landscape

TSN Value	Description	Crosswalk (Median Barrier : HPMS)
1	Curbed Median	Z : N/A
2	Curbed Median with Trees	Z : N/A
3	Curbed Median with Shrubs	Z : N/A
4	Raised Traffic Bars	N/A
5	Median with Trees	Z : 1 (Median Width < 4) Z : N/A (Median Width >= 4)
6	Median with Shrubs	Z : 1 (Median Width < 4) Z : N/A (Median Width >= 4)
7	No Curbs or Shrubs/No Median	Z : 1 (Median Width < 4) Z : N/A (Median Width >= 4)

Table 3: San Bernardino County

Local Value	Description	Crosswalk
A03R	Raised Traffic Channeling Island	3
A05	Curb & Gutter	9
A06	AC Dike	9
A08	Median Divided Highway	9
A09	Raised median	3

Table 4: Stanislaus County

Identical values. No crosswalk table necessary.

4.1.14 Access Control (23)

Definition: The degree of access control for a given section of road. Reference from HPMS *Access Control (5)* element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	Access Control	Access Control	Access Control	Access Control
Element Number	5	23	N/A	N/A

Possible Values:

HPMS Value	Description
1	Full access control
2	Partial access control
3	No access control

Table 1: MIRE 2.0

Identical values. No crosswalk table necessary.

Table 2: TSN

TSN Value	Description	Crosswalk
C	Conventional - No Access Control	3
E	Expressway - Partial Access Control	2
F	Freeway - Full Access Control	1
S	One-Way City Street - No Access Control	3

Table 3: Stanislaus County

Identical values. No crosswalk table necessary.

4.1.15 One/Two-Way Operations (93)

Definition: Indication of whether the segment operates as a one- or two-way roadway.
Reference from HPMS Facility Type (3) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	SANDAG	Kings County	SCAG	Stanislaus County
Element Name	Facility Type	One/Two-Way Operations	Access Control	ONEWAY	N/A	DIR	One/Two-Way Operations
Element Number	3	93	N/A	N/A	N/A	N/A	N/A

Possible Values:

HPMS Value	Description
1	One-Way Roadway
2	Two-Way Roadway
4	Ramp
5	Non-Mainline
6	Non-Inventory Direction
7	Planned/Unbuild

Table 1: MIRE 2.0

MIRE 2.0 Value	Description	Crosswalk
1	One-Way Roadway	1
2	Two-Way Roadway	2
3	One direction of travel for divided roadways	6

Table 2: TSN

TSN Value	Description	Crosswalk
C	Conventional - No Access Control	N/A
E	Expressway - Partial Access Control	N/A
F	Freeway - Full Access Control	N/A
S	One-Way City Street - No Access Control	N/A

Table 3: SANDAG (Imperial Beach)

Local Value	Description	Crosswalk
F	Addresses increases in same direction as traffic flow	1
T	Addresses increase in opposite direction of traffic flow	2
B	Two-way streets (default value)	2

Table 4: Kings County

Local Value	Description	Crosswalk
ONE WAY	One-Way Roadway	1
TWO WAY	Two-Way Roadway	2

Table 5: SCAG

Local Value	Description	Crosswalk
1 or -1	One way street	1
0	Two way street	2

Table 6: Stanislaus County

Local Value	Description	Crosswalk
1	One-Way Roadway	1
2	Two-Way Roadway	2
3	One direction of travel for divided roadways	6

4.1.16 Number of Through Lanes (32)

Definition: The total number of through lanes on the segment. It is the number of through lanes in the direction of inventory. If the road is inventoried in both directions together, this would be the number of through lanes in both directions. If the road is inventoried separately for each direction, this would be the number of through lanes in one single direction. Reference from HPMS Through Lanes (7) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	Through Lanes	Number of Through Lanes	Through Lanes	Number of Through Lanes
Element Number	7	32	N/A	N/A

Possible Values: Numeric

4.1.17 Annual Average Daily Traffic (AADT) (81)

Definition: AADT value to represent the current data year. For two-way facilities, provide the AADT for both directions; provide the directional AADT if part of a one-way couplet or for one-way streets. Reference from HPMS Annual Average Daily Traffic (21) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	Annual Average Daily Traffic	Annual Average Daily Traffic	AADT	Annual Average Daily Traffic
Element Number	21	81	N/A	N/A

Possible Values: Vehicles per day

4.1.18 AADT Year (82)

Definition: Year of AADT. Reference from MIRE 2.0 AADT Year (82) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	No Matching Element	AADT Year	AADT Year	AADT Year
Element Number	No Matching Element	82	N/A	N/A

Possible Values: Year OR 9999 - Unknown

4.1.19 Type of Government Ownership (4)

Definition: The entity that has legal ownership of a roadway. Reference from HPMS Ownership (6) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	MTC	City of Yuba	Kern County	Stanislaus County
Element Name	Ownership	Type of Government Ownership	Government Ownerships	Agency	N/A	N/A	Type of Government Ownership
Element Number	6	4	N/A	N/A	N/A	N/A	N/A

Possible Values:

HPMS Value	Description
1	State Hwy Agency
2	County Hwy Agency
3	Town or Township Hwy Agency
4	City or Municipal Hwy Agency
11	State Park, Forest, or Reservation Agency
12	Local Park, Forest, or Reservation Agency
21	Other State Agency
25	Other Local Agency
26	Private (other than Railroad)
27	Railroad
31	State Toll Authority
32	Local Toll Authority
40	Other Public Instrumentality (eg , Airport, School, University)

50	Indian Tribe Nation
60	Other Federal Agency
62	Bureau of Indian Affairs
63	Bureau of Fish and Wildlife
64	US Forest Service
66	National Park Service
67	Tennessee Valley Authority
68	Bureau of Land Management
69	Bureau of Reclamation
70	Corps of Engineers
72	Air Force
73	Navy/Marines
74	Army
80	Other

Table 1: MIRE 2.0

MIRE 2.0 Value	Description	Crosswalk
1	State Highway Agency	1
2	County Highway Agency	2
3	Town or Township Highway Agency	3
4	City or Municipal Highway Agency	4
5	State Park, Forest, or Reservation Agency	11
6	Local Park, Forest, or Reservation Agency	12
7	Other State Agency	21
8	Other Local Agency	25
9	Private (other than Railroad)	26

10	Railroad	27
11	State Toll Authority	31
12	Local Toll Authority	32
13	Other Public Instrumentality (e.g. Airport)	40
14	Indian Tribe Nation	50
15	Other Federal Agency	60
16	Bureau of Indian Affairs	62
17	Bureau of Fish and Wildlife	63
18	US Forest Service	64
19	National Park Service	66
20	Tennessee Valley Authority	67
21	Bureau of Land Management	68
22	Bureau of Reclamation	69
23	Corps of Engineers	70
24	Air Force	72
25	Navy/Marines	73
26	Army	74
27	Other	80

Table 2: TSN

TSN Value	Description	Crosswalk
1	State Highway System	1

Table 3: MTC

Local Value	Description	Crosswalk
2	City	2
4	County	4

Table 4: City of Yuba

Local Value	Description	Crosswalk
City	City of Yuba City ROW	2
County	County of Sutter ROW	4
Private	Owned and Maintained by Private Party	9
Other	Owned and Maintained by party other than city, county or private	80

Table 5: Kern County

Local Value	Description	Crosswalk
CITY	Cities within Kern County	2
COUNTY	Kern County	4
USAF	U.S. Air Force	72

Table 6: Stanislaus County

Local Value	Description	Crosswalk
1	State Highway Agency	1
2	County Highway Agency	2
3	Town or Township Highway Agency	3
4	City or Municipal Highway Agency	4
5	State Park, Forest, or Reservation Agency	11
6	Local Park, Forest, or Reservation Agency	12

7	Other State Agency	21
8	Other Local Agency	25
9	Private (other than Railroad)	26
10	Railroad	27
11	State Toll Authority	31
12	Local Toll Authority	32
13	Other Public Instrumentality (e.g. Airport)	40
14	Indian Tribe Nation	50
15	Other Federal Agency	60
16	Bureau of Indian Affairs	62
17	Bureau of Fish and Wildlife	63
18	US Forest Service	64
19	National Park Service	66
20	Tennessee Valley Authority	67
21	Bureau of Land Management	68
22	Bureau of Reclamation	69
23	Corps of Engineers	70
24	Air Force	72
25	Navy/Marines	73
26	Army	74
27	Other	80

4.2. Intersections

4.2.1 Unique Junction Identifier (110)

Definition: A unique junction identifier. Reference from MIRE 2.0 Unique Junction Identifier (110) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	No Matching Element	Unique Junction Identifier	Connection ID	Unique Junction Identifier
Element Number	No Matching Element	110	N/A	N/A

Possible Values: User defined (e.g., node number, LRS of primary route, etc.)

4.2.2 Location Identifier for Road 1 Crossing Point (112)

Definition: Location of the center of the junction on the first intersecting route (e.g. route milepost). Reference from MIRE 2.0 [Location Identifier for Road 1 Crossing Point \(112\)](#) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	City of Elk Grove	Stanislaus County
Element Name	No Matching Element	Location Identifier for Road 1 Crossing Point	Intersecting Route Post Mile	N/A	Location Identifier for Road 1 Crossing Point
Element Number	No Matching Element	112	N/A	N/A	N/A

Possible Values: Route and location descriptors (e.g., route and milepoint or route and spatial coordinates).

Additional Information:

City of Elk Grove

Do not use route or milepost. References are by street name and latitude longitude from a GIS layer.

4.2.3 Location Identifier for Road 2 Crossing Point (113)

Definition: Location of the center of the junction on the second intersecting route (e.g. route milepost). Reference from MIRE 2.0 *Location Identifier for Road 2 Crossing Point (113)* element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	City of Elk Grove	Stanislaus County
Element Name	No Matching Element	Location Identifier for Road 2 Crossing Point	Intersecting Route Name	N/A	Location Identifier for Road 2 Crossing Point
Element Number	No Matching Element	113	N/A	N/A	N/A

Possible Values: Route and location descriptors (e.g., route and milepoint or route and spatial coordinates).

Additional Information:

City of Elk Grove

Do not use route or milepost. References are by street name and latitude longitude from a GIS layer.

4.2.4 Intersection/Junction Geometry (116)

Definition: The type of geometric configuration that best describes the intersection/junction. Reference from MIRE 2.0 *Intersection/Junction Geometry (116)* element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	No Matching Element	Intersection/Junction Geometry	Intersection Design Type	Intersection/Junction Geometry
Element Number	No Matching Element	116	N/A	N/A

Possible Values:

MIRE 2.0 Value	Description
1	T-Intersection
2	Y-Intersection
3	Cross-Intersection (four legs)
4	Five or more legs and not circular
5	Roundabout
6	Other circular intersection (e.g., rotaries, neighborhood traffic circles)
7	Midblock pedestrian crossing
8	Restricted crossing U-turn (i.e., RCUT, J-turn, Superstreet) intersection
9	Median U-turn (i.e., MUT, Michigan Left, Thru-turn) intersection
10	Displaced left-turn (i.e., DLT, continuous

	flow, CFI) intersection
11	Jughandle (i.e., New Jersey jughandle) intersection
12	Continuous green T intersection
13	Quadrant (i.e., quadrant roadway) intersection
14	Other

Table 1: HPMS
No matching element.

Table 2: TSN

TSN Value	Description	Crosswalk
F	Four-Legged	3
M	Multi-Legged	4
S	Offset	1
T	Tee	1
Y	Wye	2
Z	Other	14
R	Roundabout	5

Table 3: Stanislaus County
Identical values. No crosswalk table necessary.

4.2.5 Intersection/Junction Traffic Control (121)

Definition: Traffic control present at intersection/junction. Reference from MIRE 2.0 *Intersection/Junction Traffic Control (121)* element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	City of Elk Grove	Stanislaus County
Element Name	No Matching Element	Intersection/Junction Traffic Control	Intersection Traffic Control Type	ATMS No.	N/A
Element Number	No Matching Element	121	N/A	N/A	N/A

Possible Values:

MIRE 2.0 Value	Description
1	Uncontrolled
2	Two-way stop
3	All-way stop
4	Yield sign
5	Signalized
6	Pedestrian Hybrid Beacon (PHB or High-Intensity Activated Crosswalk [HAWK])
7	Flash Beacon (include Rectangular Rapid Flash Beacon)
8	Railroad crossing, gates and flashing lights
9	Railroad crossing, flashing lights only
10	Railroad crossing, stop-sign controlled
11	Railroad crossing, crossbucks only
12	Other

Table 1: HPMS

No matching element.

Table 2: TSN

TSN Value	Description	Crosswalk
A	No Control	1
B	Stop Signs on Cross Street Only	2
C	Stop Signs on Mainline Only	2
D	Four-Way Stop Signs	3
E	Four-Way Flasher [Red on Cross Street]	7
F	Four-Way Flasher [Red on Mainline]	7
G	Four-Way Flasher [Red on All]	7
H	Yield Signs [On Cross Street Only]	4
I	Yield Signs [On Mainline Only]	4
R	Yield Signs (All Ways)	4
J	Signals Pretimed – 2 phase	5
K	Signals Pretimed – Multi-Phase	5
L	Signals Semi-Traffic Actuated – 2 Phase	5
M	Signals Semi-Traffic Actuated – Multi Phase	5
N	Signals Full-Traffic Actuated – 2 Phase	5
P	Signals Full-Traffic Actuated – Multi-Phase	5
Z	Other	12

Table 3: City of Elk Grove

ATMS No.: Signalized

Table 4: MIRE 2.0

Identical values. No crosswalk table necessary.

4.3. Intersection Legs

4.3.1 Unique Approach Identifier (129)

Definition: A unique identifier for each approach of an intersection. Reference from MIRE 2.0 Unique Approach Identifier (129) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	No Matching Element	Unique Approach Identifier	Flow Code	Unique Approach Identifier
Element Number	No Matching Element	129	N/A	N/A

Possible Values: Any identifier that is unique for each approach within a single intersection (e.g., sequential numbers or letters, compass directions, "clock hours").

4.3.2 Intersection Identifier for this Approach (128)

Definition: The unique numeric identifier assigned to the intersection that includes this approach. Reference from MIRE 2.0 *Intersection Identifier for this Approach (128)* element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	No Matching Element	Intersection Identifier for this Approach	N/A	Intersection Identifier for this Approach
Element Number	No Matching Element	128	N/A	N/A

Possible Values: The intersection identifier entered in Intersection Element 110 - Unique Junction Identifier.

4.3.3 Approach AADT (130)

Definition: The AADT on the approach leg of the intersection/junction. Reference from MIRE 2.0 Approach AADT (130) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	No Matching Element	Approach AADT	N/A	Approach AADT
Element Number	No Matching Element	130	N/A	N/A

Possible Values: Vehicles per day

4.3.4 Approach AADT Year (131)

Definition: The year of the AADT on the approach leg of the intersection/junction.

Reference from MIRE 2.0 Approach AADT Year (131) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	No Matching Element	Approach AADT Year	N/A	Approach AADT Year
Element Number	No Matching Element	131	N/A	N/A

Possible Values: Year OR 9999 - Unknown

4.4. Interchanges

4.4.1 Unique Interchange Identifier (168)

Definition: Unique identifier for each interchange. Reference from MIRE 2.0 Unique Interchange Identifier (168) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	No Matching Element	Unique Interchange Identifier	Ramp Name	Unique Interchange Identifier
Element Number	No Matching Element	168	N/A	N/A

Possible Values: User defined (e.g., node number, LRS of primary route, exit numbers, etc.)

4.4.2 Interchange Type (172)

Definition: Type of interchange. Reference from MIRE 2.0 *Interchange Type (172)* element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	No Matching Element	Interchange Type	Ramp Type	Interchange Type
Element Number	No Matching Element	172	N/A	N/A

Possible Values:

MIRE 2.0 Value	Description
1	Diamond
2	Full cloverleaf
3	Partial cloverleaf
4	Trumpet
5	Three-leg directional
6	Four-leg all-directional
7	Semi-directional
8	Single entrances and/or exits (partial interchange)
9	Single point interchange (SPI)
10	Diverging diamond (i.e., DDI, double-crossover diamond, DCD) interchange
11	Double roundabout (i.e., double raindrop) interchange

12	Single roundabout (i.e., single raindrop) interchange
13	Quadrant
14	Other

Table 1: HPMS
No matching element.

Table 2: TSN

TSN Value	Description	Crosswalk
A	Frontage Road	N/A
B	Collector Road	N/A
C	Direct or Semi-Direct Connector (Left)	N/A
D	Diamond Type Ramp	1
E	Slip Ramp	N/A
F	Direct or Semi Direct Connector (Right)	N/A
G	Loop-w/Left Turn P – Dummy-Paired	N/A
H	Buttonhook Ramp V – Dummy-Volume Only	N/A
J	Scissors Ramp	N/A
K	Split Ramp	N/A
L	Loop-w/o Left Turn	N/A
M	Two-Way Ramp Segment	N/A
R	Rest Area, Vista Point, Truck Scale	N/A
Z	Other	14

Table 3: Stanislaus County
Identical values. No crosswalk table necessary.

4.5. Ramps

4.5.1 Unique Ramp Identifier (176)

Definition: An identifier for each ramp that is part of a given interchange. This defines which ramp the following elements are describing. Reference from MIRE 2.0 Unique Ramp Identifier (176) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Kern County	Stanislaus County
Element Name	No Matching Element	Unique Ramp Identifier	N/A	MSLINK	Unique Ramp Identifier
Element Number	No Matching Element	176	N/A	N/A	N/A

Possible Values: Alphanumeric (e.g., each set of interchange ramps could begin with "1" or "A", each ramp could be identified by its route and exit number, etc.).

4.5.2 Interchange Identifier for this Ramp (175)

Definition: The unique numeric identifier assigned to the interchange that this ramp is part of. See Element 168. Unique Interchange Identifier. This provides linkage to the basic interchange information and to all other ramps. Reference from MIRE 2.0 Interchange Identifier for this Ramp (175) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	No Matching Element	Interchange Identifier for this Ramp	N/A	Interchange Identifier for this Ramp
Element Number	No Matching Element	175	N/A	N/A

Possible Values: The interchange identifier entered in Element 168. Unique Interchange Identifier.

4.5.3 Location Identifier for Roadway at Beginning Ramp Terminal (187)

Definition: Location on the roadway at the beginning ramp terminal (e.g. route-milepost for that roadway) if the ramp connects with a roadway at that point.

Reference from MIRE 2.0 Location Identifier for Roadway at Beginning Ramp Terminal (187) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Kings County	Stanislaus County
Element Name	No Matching Element	Location Identifier for Roadway at Beginning Ramp Terminal	On ramp postmile	ST_FROM	Location Identifier for Roadway at Beginning Ramp Terminal
Element Number	No Matching Element	187	N/A	N/A	N/A

Possible Values: Route and location descriptors (e.g., route and milepoint or spatial coordinates) for the roadway intersected at the beginning ramp terminal. Must be consistent with other MIRE files for linkage. See point D in Figure 26 on page 134 for additional detail. In this example the Location Identifier for Roadway at Beginning Ramp Terminal = MP 128.06.

4.5.4 Location Identifier for Roadway at Ending Ramp Terminal (191)

Definition: Location on the roadway at the ending ramp terminal (e.g. route-milepost for that roadway) if the ramp connects with a roadway at that point. Reference from MIRE 2.0 *Interchange Identifier for Roadway at Ending Ramp Terminal (191)* element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Kings County	Stanislaus County
Element Name	No Matching Element	Location Identifier for Roadway at Ending Ramp Terminal	Off ramp postmile	ST_TO	Location Identifier for Roadway at Ending Ramp Terminal
Element Number	No Matching Element	191	N/A	N/A	N/A

Possible Values: Route and location descriptors (e.g., route and milepoint or spatial coordinates) for the roadway intersected at the ending ramp terminal. Must be consistent with other MIRE files for linkage. See point E in Figure 26 on page 134 for additional detail. In this example the Location Identifier for Roadway at Ending Ramp Terminal = MP 126.77.

4.5.5 Ramp Length (177)

Definition: Length of ramp. The length should be measured from taper to taper.

Reference from HPMS Section Length (Field 7) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	Section Length	Ramp Length	Ramp Length	Ramp Length
Element Number	Field 7	177	N/A	N/A

Possible Values: Code the length in decimal format to the nearest thousandth of a mile.

4.5.6 Roadway Type at Beginning Ramp Terminal (185)

Definition: A ramp is described by a beginning and ending ramp terminal in the direction of ramp traffic flow or the direction of inventory. This element describes the type of roadway intersecting with the ramp at the beginning terminal. Reference from MIRE 2.0 Roadway Type at Beginning Ramp Terminal (185) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	SCAG	Stanislaus County
Element Name	No Matching Element	Roadway Type at Beginning Ramp Terminal	Access Control	Ramps	Roadway Type at Beginning Ramp Terminal
Element Number	No Matching Element	185	N/A	8	N/A

Possible Values:

MIRE 2.0 Value	Description
1	Freeway
2	Non-freeway (surface street)
3	Other Ramp
4	Frontage Road
5	Other

Table 1: HPMS
No matching element.

Table 2: TSN

TSN Value	Description	Crosswalk
C	Conventional - No Access Control	2
E	Expressway - Partial Access Control	2
F	Freeway - Full Access Control	1
S	One-Way City Street - No Access Control	2

Table 3: SCAG

TSN Value	Description	Crosswalk
80	Freeway to Freeway Connector	1
81	Freeway to arterial	1
82	Arterial to freeway	2
83	Ramp Distributor	5
84	Ramp from Arterial to HOV	3
85	Ramp from HOV to Arterial	3
86	Collector distributor	5
87	Shared HOV Ramps to MF	3
89	Truck only	5

Table 4: Stanislaus County

Identical values. No crosswalk table necessary.

4.5.7 Roadway Type at Ending Ramp Terminal (189)

Definition: A ramp is described by a beginning and ending ramp terminal in the direction of inventory. This element describes the type of roadway intersecting with the ramp at the ending terminal. Reference from MIRE 2.0 Roadway Type at Ending Ramp Terminal (189) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	No Matching Element	Roadway Type at Ending Ramp Terminal	Access Control	Roadway Type at Ending Ramp Terminal
Element Number	No Matching Element	189	N/A	N/A

Table 1: MIRE 2.0

MIRE 2.0 Value	Description
1	Freeway
2	Non-freeway (surface street)
3	Other Ramp
4	Frontage Road
5	Other

Table 1: HPMS

No matching element.

Table 2: TSN

TSN Value	Description	Crosswalk
C	Conventional - No Access Control	2
E	Expressway - Partial Access Control	2
F	Freeway - Full Access Control	1
S	One-Way City Street - No Access Control	2

Table 3: Stanislaus County

Identical values. No crosswalk table necessary.

4.5.8 Ramp AADT (181)

Definition: AADT on ramp. Reference from MIRE 2.0 Ramp AADT (181) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	No Matching Element	Ramp AADT	Ramp AADT	Ramp AADT
Element Number	No Matching Element	181	N/A	N/A

Possible Values: Vehicles per day

4.5.9 Year of Ramp AADT (182)

Definition: Year of AADT on ramp. Reference from MIRE 2.0 [Year of Ramp AADT \(182\)](#) element.

Summary Crosswalk Table:

Dataset	HPMS	MIRE	TSN	Stanislaus County
Element Name	No Matching Element	Year of Ramp AADT	Ramp AADT Year	Year of Ramp AADT
Element Number	No Matching Element	182	N/A	N/A

Possible Values: Year OR 9999 - Unknown