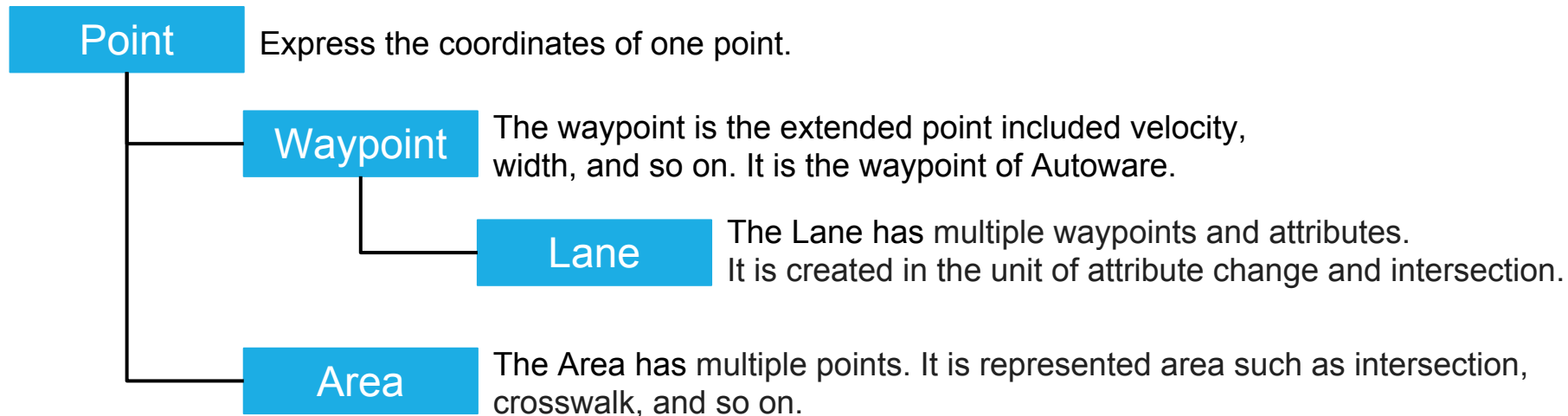
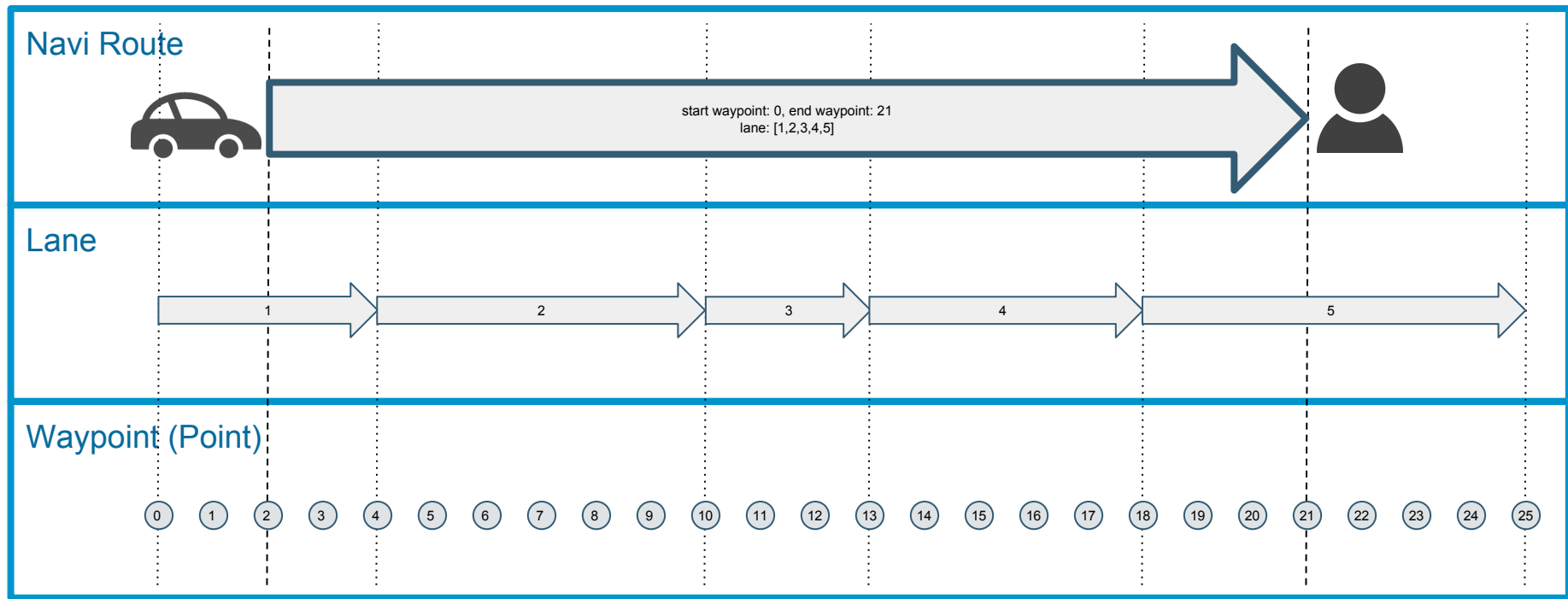


Autoware Maps Format

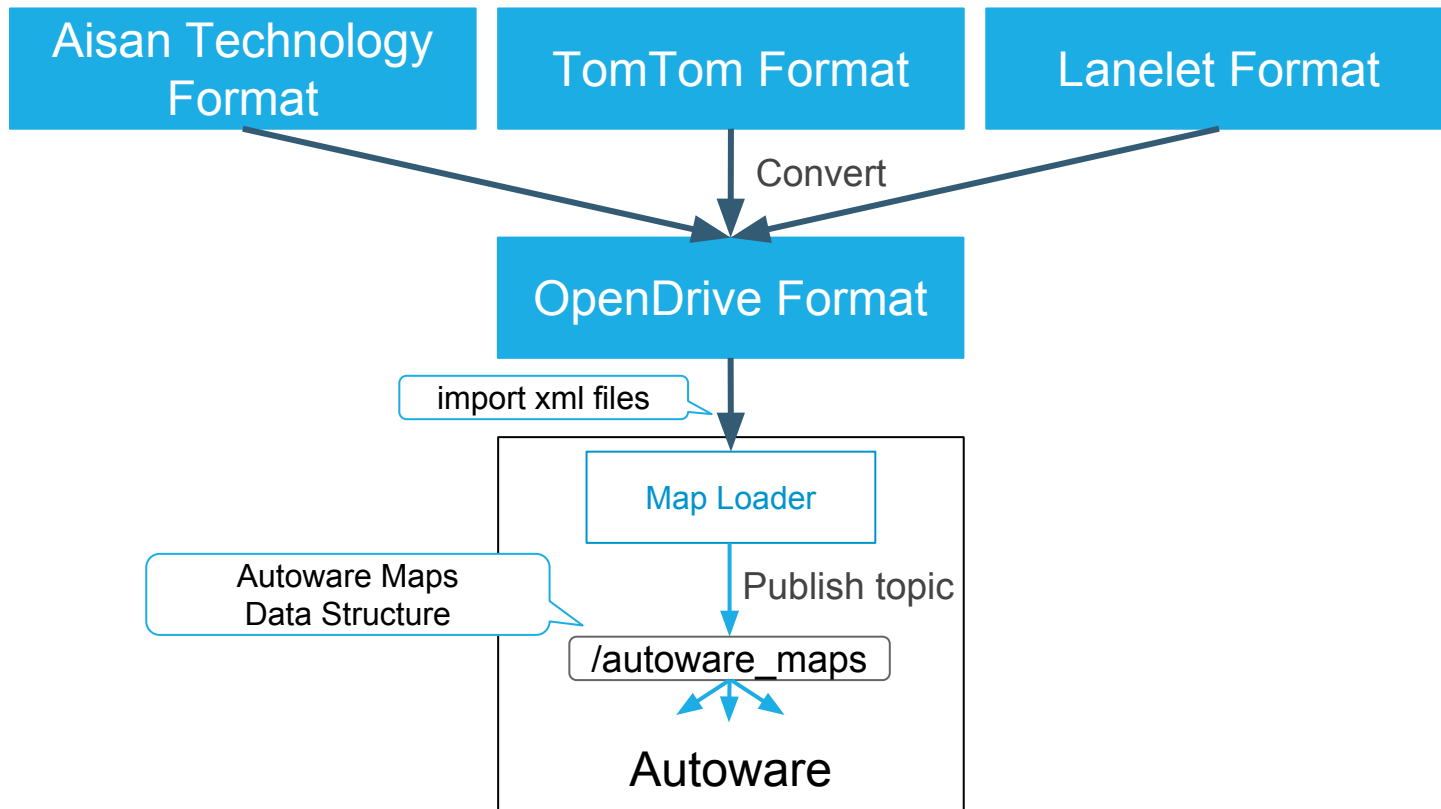
| Data Structure



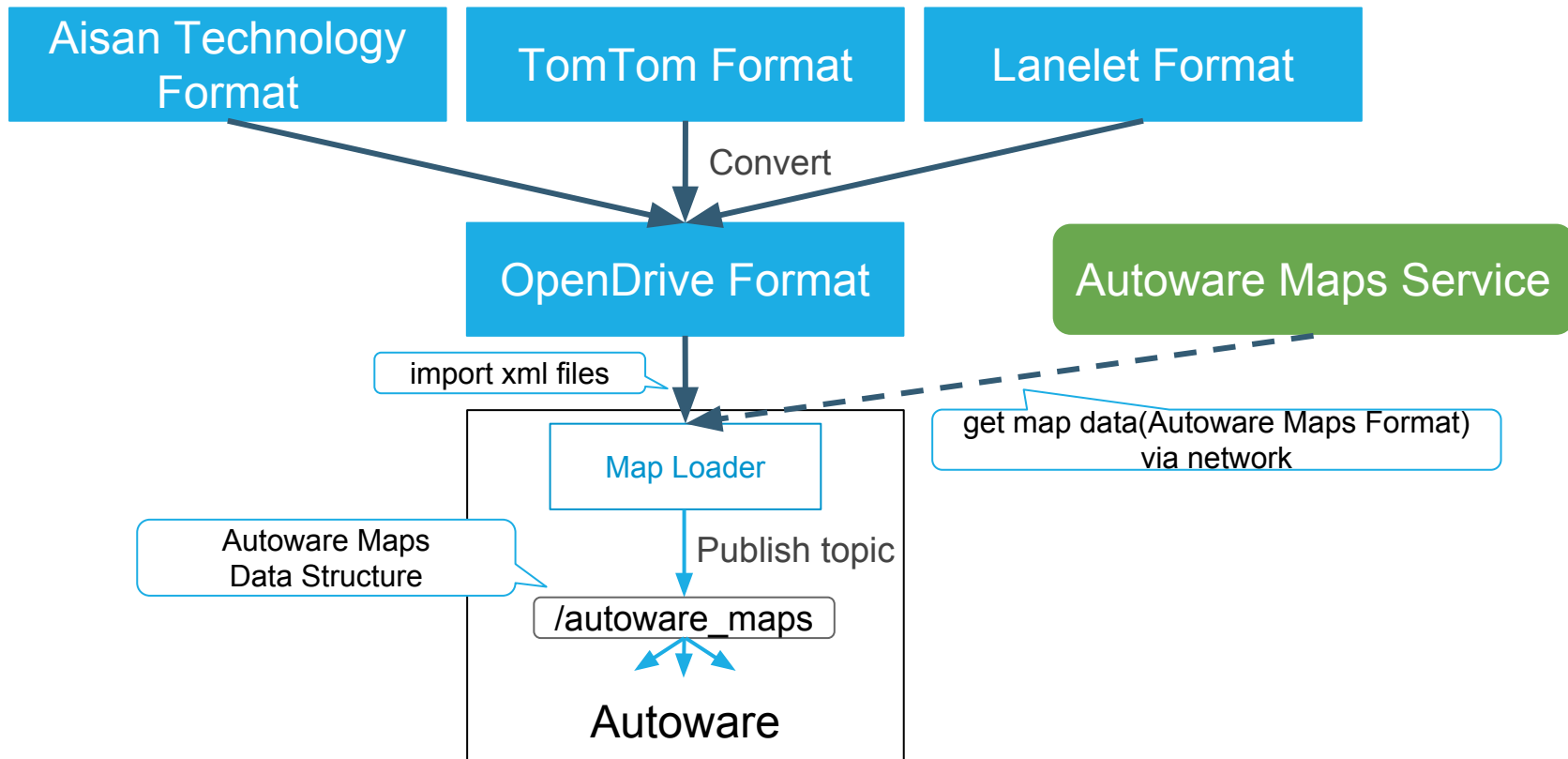
Data Structure Image



| Support Another Map Format



Support Another Map Format

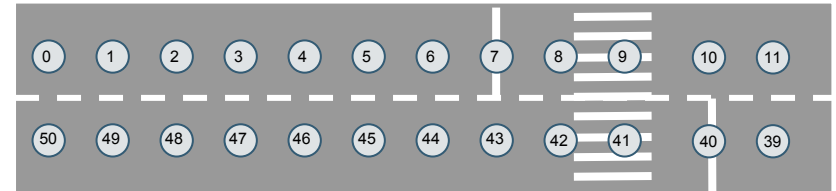
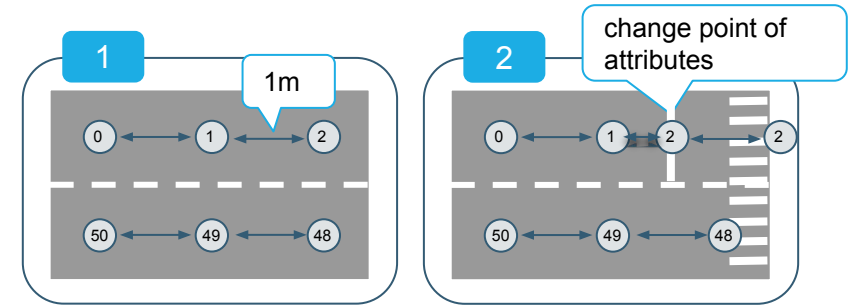


Point

Field Record	Contents	Type
point_id	Point ID	int
x	X Coordinate (northing)	double
y	Y Coordinate (easting)	double
z	Z Coordinate (elevation)	double
lat	latitude (degree)	double
lng	logitude (degree)	double
pcd	PCD File Name	string
mgrs	mgrs code (ZZBGEEEEENNNNN)	string
epsg	epsg code	int

Rules

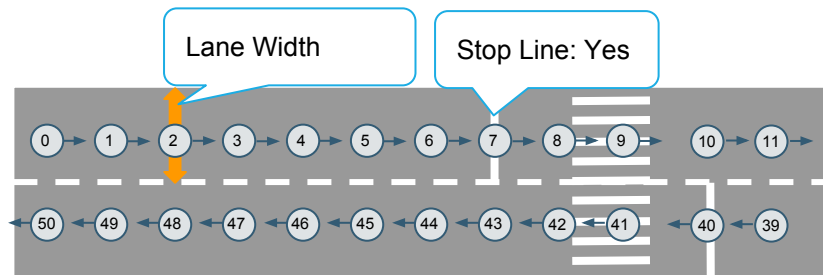
1. Points are basically placed every 1 meter.
2. Points are always placed on change point of attributes and node of link.



Waypoint

Field Record	Contents	Type
waypoint_id	Waypoint ID	int
point_id	Point ID	int
velocity	Velocity	double
stop_line	Stop Line	int (0: No, 1: YES)
width	Lane Width	double [m]
height	Lane Height (Limit)	double [m] (0: No)

Point

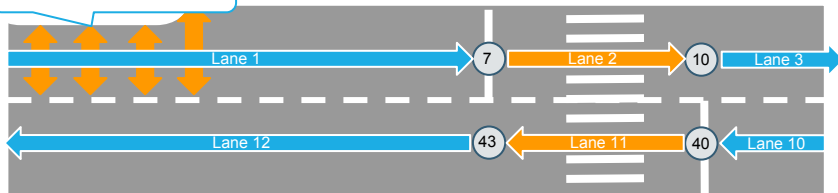


Lane

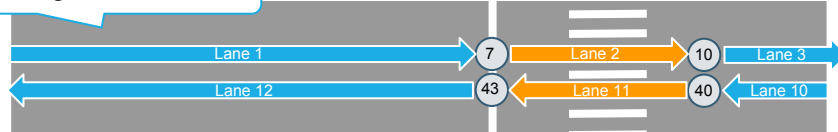
Field Record	Contents	Type
lane_id	Lane	int
start_waypoint_id	Waypoint ID	int
end_waypoint_id	Waypoint ID	int
lane_number	Lane Number	int (Single track lane: 0)
num_of_lanes	Number of Lanes	int (Single track lane: 0)
speed_limit	Speed Limit	double [km/h]
length	Length of Lane	double [m]
width_limit	Width Limit	double [m]
height_limit	Height Limit	double [m]
weight_limit	Weight Limit	double [kg]

Waypoint

Lane Width Limit



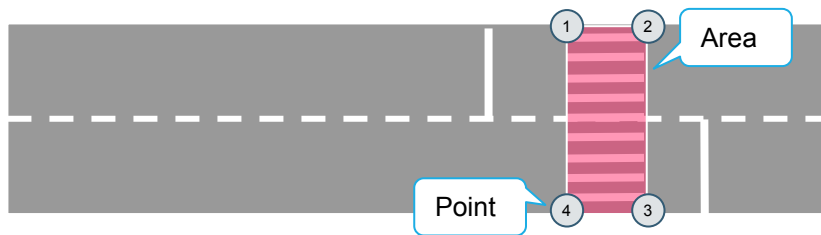
Single Track Lane



Area

Field Record	Contents	Type	Example
area_id	Area ID	int	
point_ids	Point ID	string	1:2:3:4

Point



Lane Attribute Relations

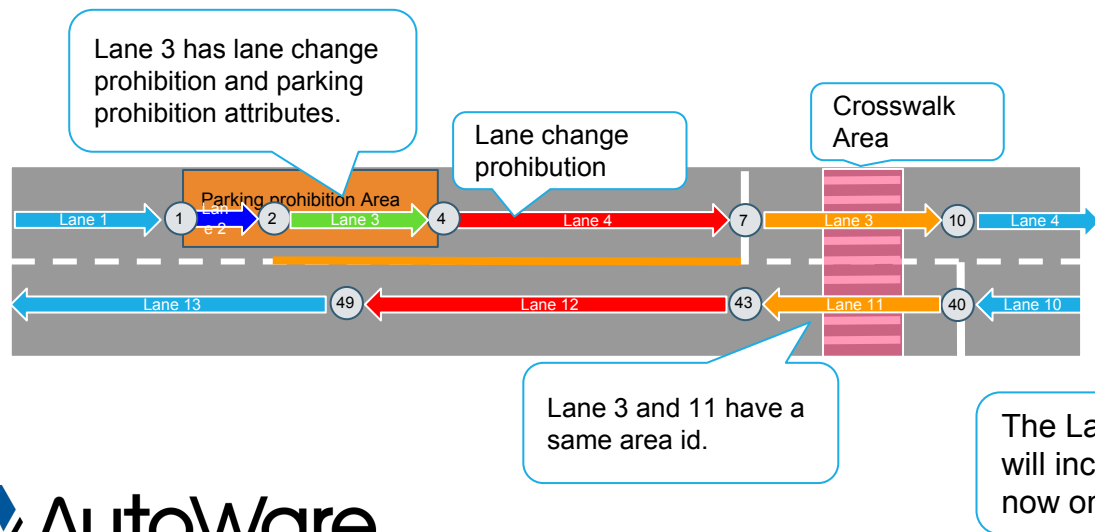
Field Record	Contents	Type
lane_id	Lane ID	int
attribute_type	Attribute Type	int
area_id	Area ID	int (have no area: 0)

Lane

Area

Lane Attributes

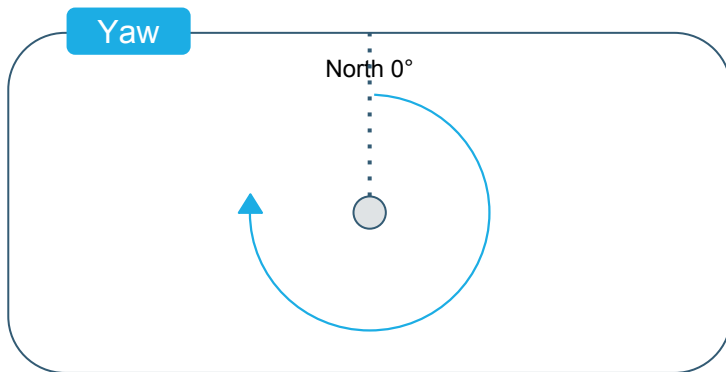
Attribute Type Num	Type
1	Plane
2	Intersection
3	Crosswalk
4	Lane change prohibition
5	Parking prohibition
6	Railroad
7	Sidewalk
8	Parking Area
...	...



Waypoint Relations

Field Record	Contents	Type
waypoint_id	Waypoint ID	int
next_waypoint_id	Waypoint ID	int
yaw	Yaw Angle	double
blinker	Blinker Type	int (No: 0, Left: 1, Right: 2)
distance	Distance between waypoint to next_wapoint	double [m]

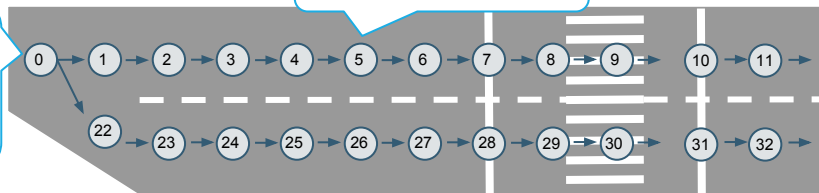
Waypoint



One-way

next_waypoint_id: 5

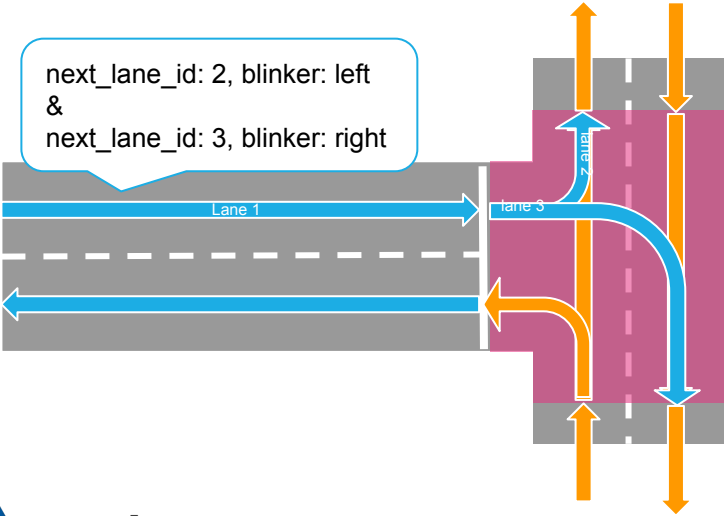
next_waypoint_id: 1
&
next_waypoint_id: 22,
blinker: right



Lane Relations

Field Record	Contents	Type
lane_id	Lane ID	int
next_lane_id	Lane ID	int
blinker	Blinker Type	int (No: 0, Left: 1, Right: 2)

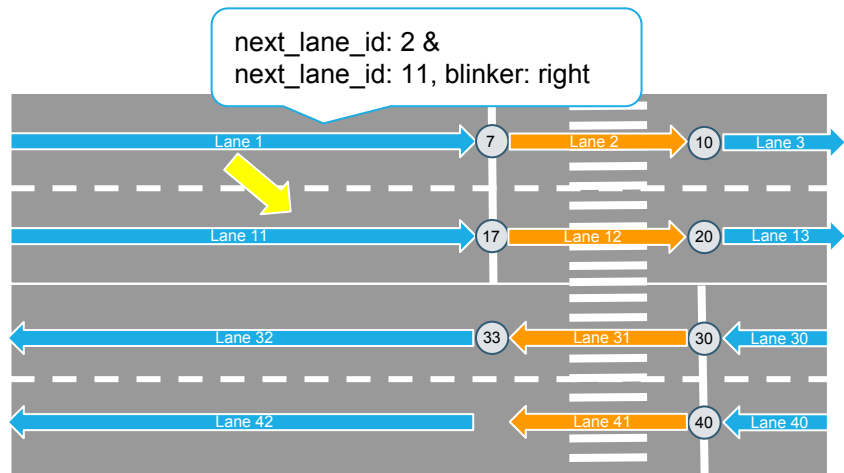
Lane



Lane Change Relations

Field Record	Contents	Type
lane_id	Lane ID	int
next_lane_id	Lane ID	int
blinker	Blinker Type	int (No: 0, Left: 1, Right: 2)

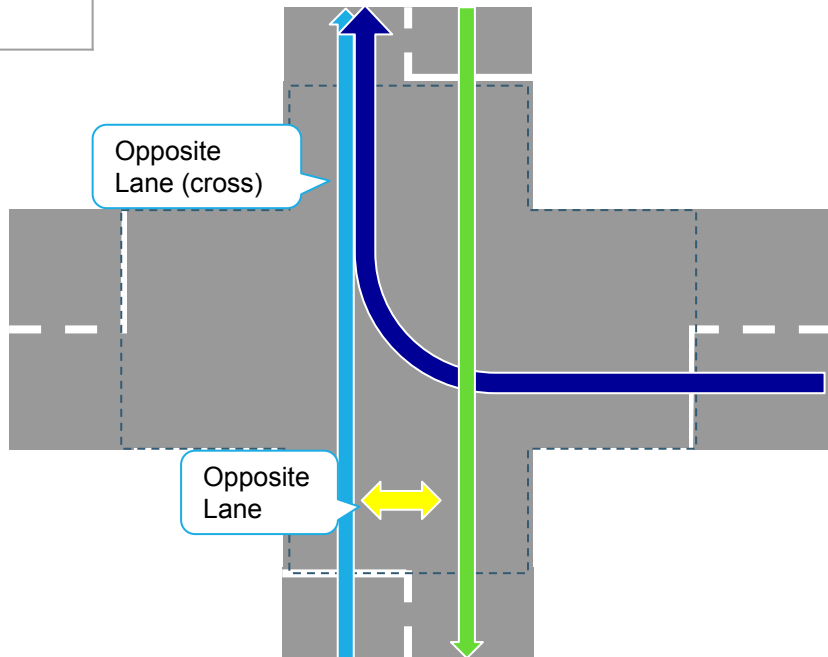
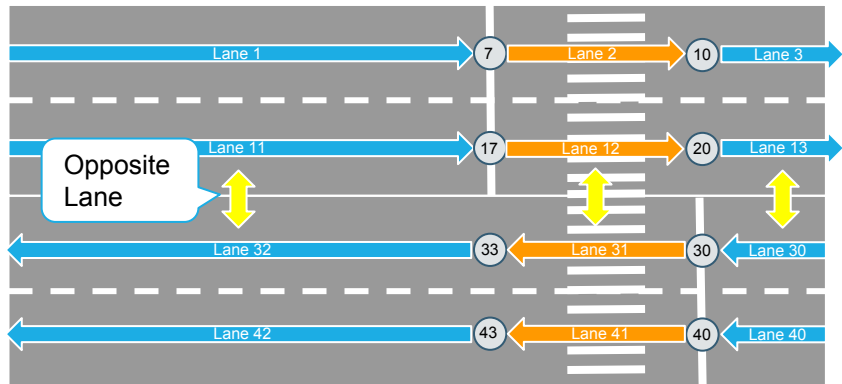
Lane



Opposite Lane Relations

Field Record	Contents	Type
lane_id	Lane ID	int
opposite_lane_id	Lane ID	int
cross	cross flag (0:none, 1:cross)	int

Lane



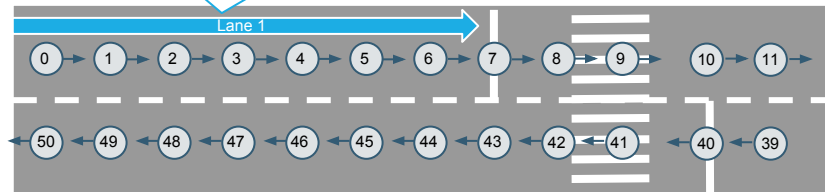
Waypoint Lane Relations

Field Record	Contents	Type
waypoint_id	Waypoint ID	int
lane_id	Lane ID	int
order	Order Number	int

Waypoint

Lane

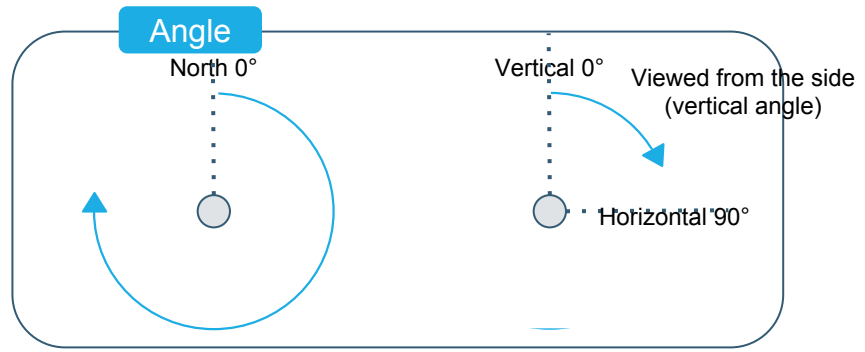
Lane 1 has waypoints
(0,1,2,3,4,5,6,7).



Signal & Signal Light

Field Record	Contents	Type
signal_id	Signal ID	int

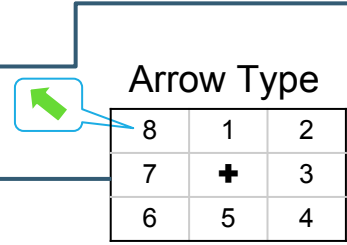
Field Record	Contents	Type
signal_light_id	Signal Light ID	int
signal_id	Signal Light ID	int
point_id	Point ID	int
horizontal_angle	Horizontal Angle	double
vertical_angle	Vertical Angle	double
color_type	Signal Color Type	int
arrow_type	Arrow Type	int



Point

Signal Color Type

Color Num	Type
1	Red
2	Green
3	Yellow
11	Red Flashing
12	Green Flashing
13	Yellow Flashing

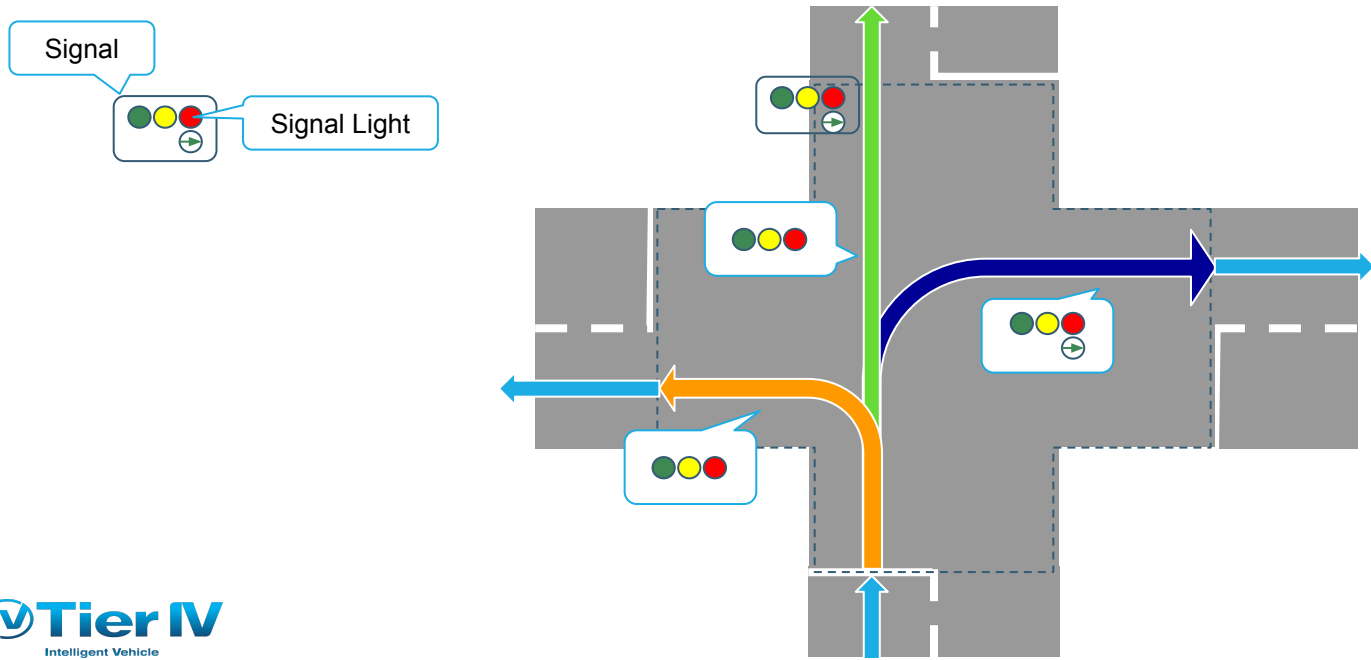


Lane Signal Light Relations

Field Record	Contents	Type
lane_id	Lane ID	int
signal_light_id	Signal Light ID	int

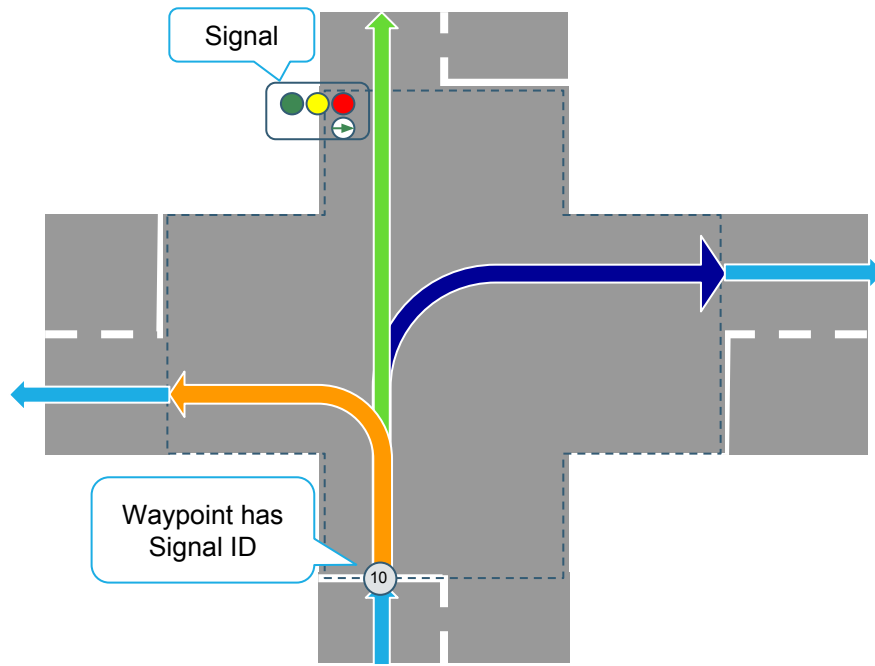
Lane

Signal Light



Waypoint Signal Relations

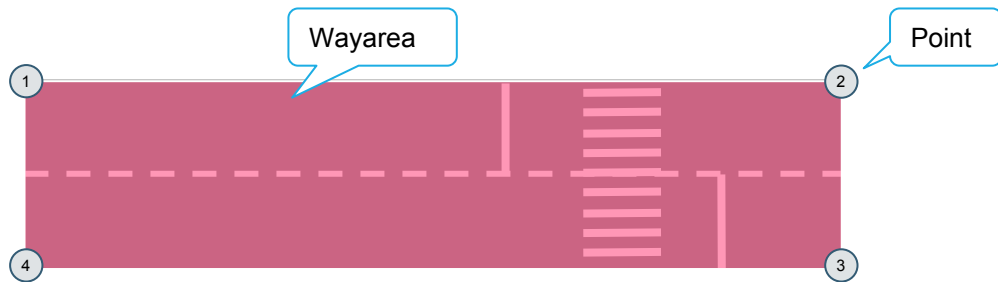
Field Record	Contents	Type	
waypoint_id	Waypoint ID	int	Waypoint
signal_id	Signal ID	int	Signal



Wayarea

Field Record	Contents	Type
wayarea_id	Wayarea ID	int
area_id	Area ID	int

Area



Ext. Signal Cycle

Lane Signal Cycle Relation

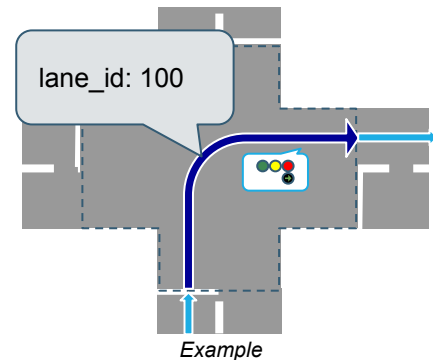
Field Record	Contents	Type	Example
lane_id	Lane ID	int	100
signal_cycle_id	Signal Cycle ID	int	10

Signal Cycle

Field Record	Contents	Type	Example
signal_cycle_id	Signal Cycle ID	int	10
signal_color_pattern_id	Signal Color Pattern ID	int	30
base time	Base Time	double	418759200.0
durations	Durations	string	60.0:5.0:10.0:5.0:30.0

Signal Color Pattern

Field Record	Contents	Type	Example
signal_color_pattern_id	Signal Color Pattern ID	int	30
signal_color_pattern	Signal Color Pattern	string	2:3:2:3:1



Signal Color Type

Color Num	Type
1	Red
2	Green
3	Yellow
11	Red Flashing
12	Green Flashing
13	Yellow Flashing