Top G - Group 21

Project Deliverable 2 -

Logical and Physical Design

(CMPG321)

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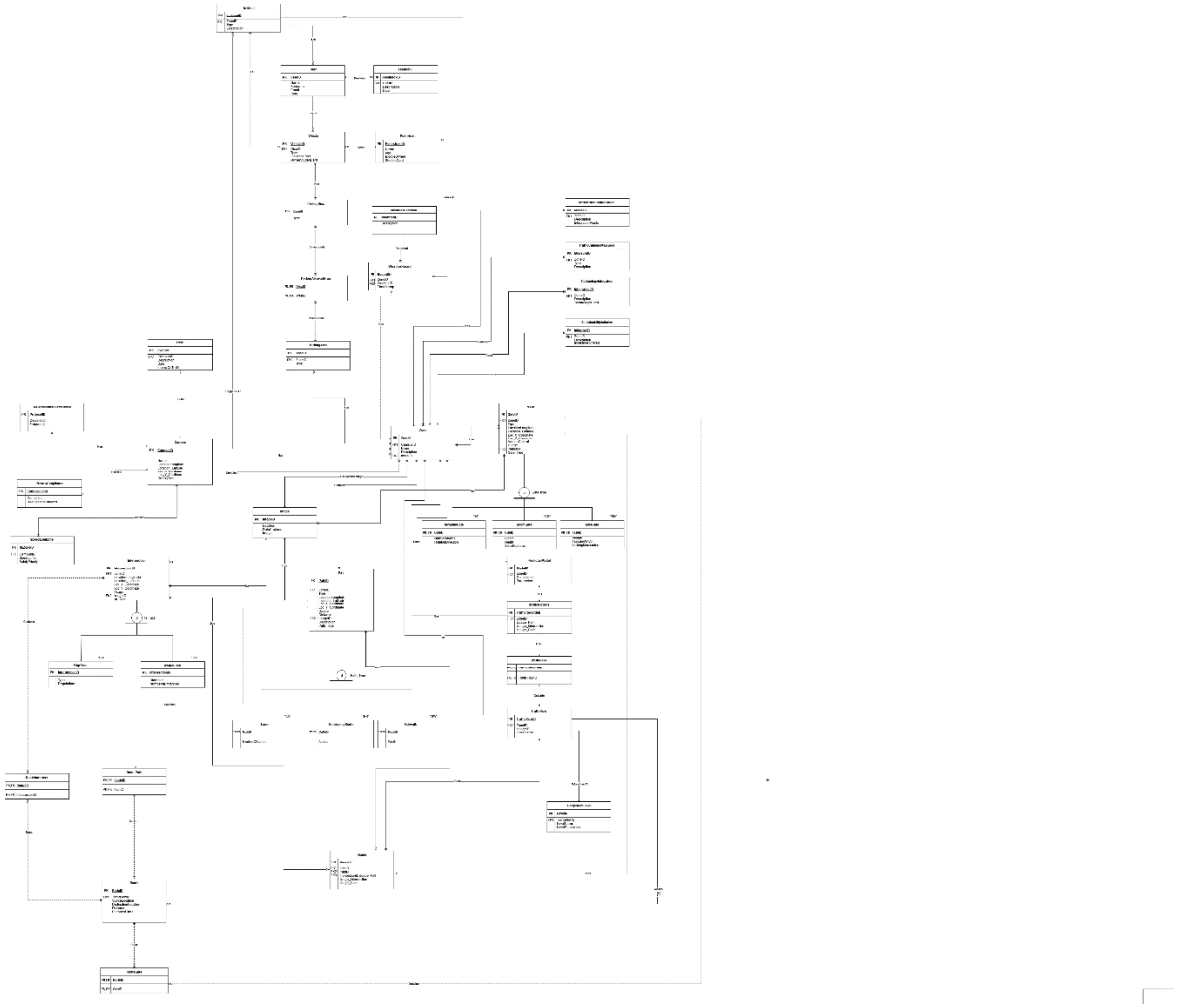
Project Deliverable 2 – Logical and Physical Design

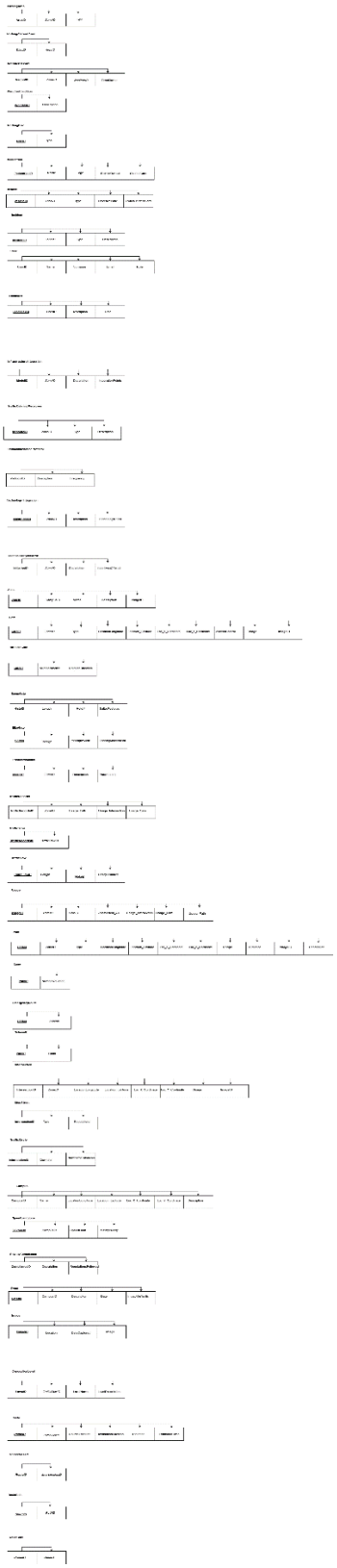
1. LOGICAL DESIGN



Draw.io Link:

https://drive.google.com/file/d/1I02DZHTOMbHH7m0Nf98BEjwzcPMco80K/view?usp=sharing

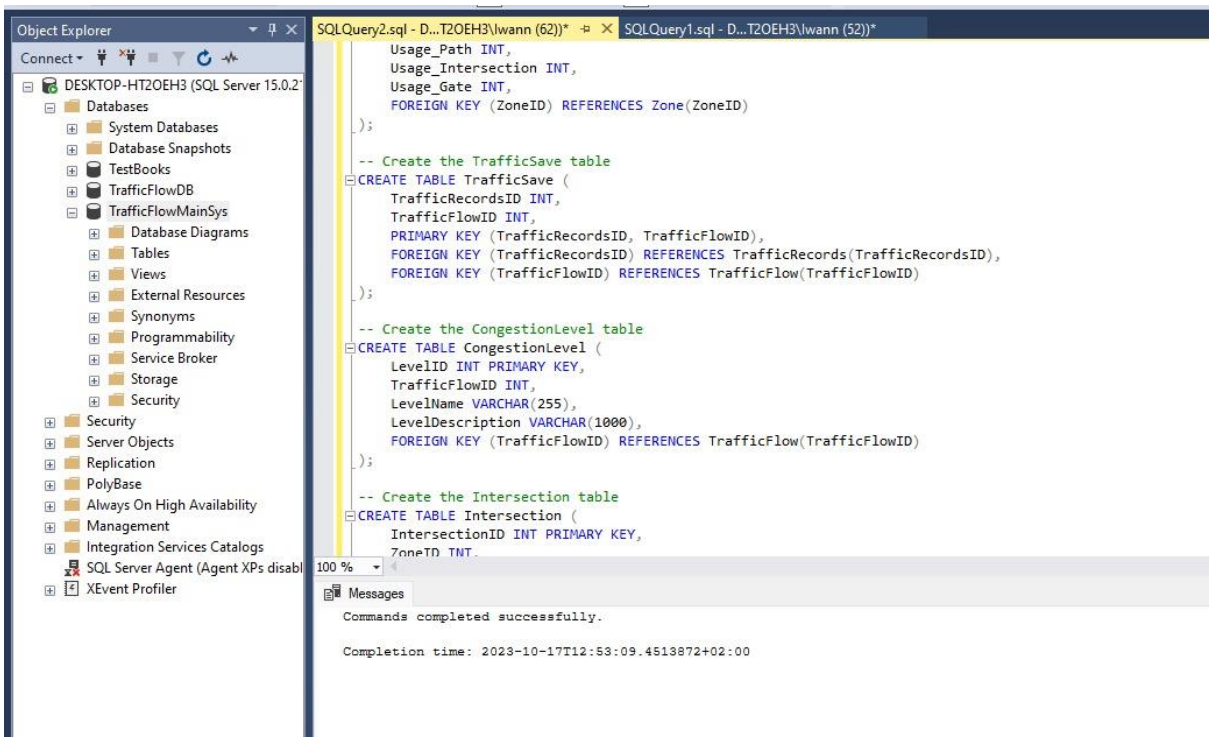
2. NORMALISATION



Link to Normalisation done in draw.Io

https://drive.google.com/file/d/1I02DZHTOMbHH7m0Nf98BEjwzcPMco80K/view?usp=sharing

3. ORACLE



// All photos were made by using appropriate SELECT * FROM [TrafficFlowMainSys].[dbo].[“DummyTable”]; SQL code

-- Insert into Image table
INSERT INTO Image (ImageID, Location, DateCaptured, Image)
VALUES (1, 'Campus Entrance', '2023-10-17', '2');

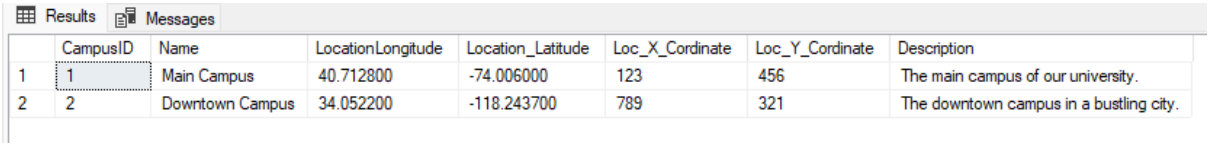
INSERT INTO Image (ImageID, Location, DateCaptured, Image)
VALUES (2, 'Parking Lot A', '2023-10-18', '3');

Results Messages

	ImageID	Location	DateCaptured	Image
1	1	Campus Entrance	2023-10-17	2
2	2	Parking Lot A	2023-10-18	3

-- Insert into Campus table
INSERT INTO Campus (CampusID, Name, LocationLongitude, Location_Latitude, Loc_X_Cordinate, Loc_Y_Cordinate, Description)
VALUES (1, 'Main Campus', 40.7128, -74.0060, 123, 456, 'The main campus of our university.');

INSERT INTO Campus (CampusID, Name, LocationLongitude, Location_Latitude, Loc_X_Cordinate, Loc_Y_Cordinate, Description)
VALUES (2, 'Downtown Campus', 34.0522, -118.2437, 789, 321, 'The downtown campus in a bustling city.');



Results | Messages

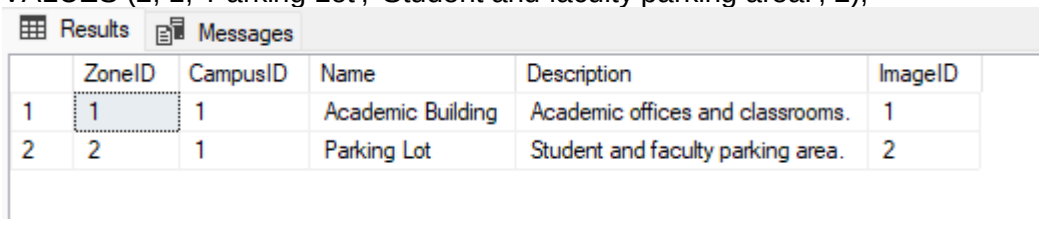
	CampusID	Name	LocationLongitude	Location_Latitude	Loc_X_Cordinate	Loc_Y_Cordinate	Description
1	1	Main Campus	40.712800	-74.006000	123	456	The main campus of our university.
2	2	Downtown Campus	34.052200	-118.243700	789	321	The downtown campus in a bustling city.

-- Insert into PrivacyCompliance table
INSERT INTO PrivacyCompliance (ComplianceID, Description, RegulationsFollowed)
VALUES (1, 'GDPR Compliance', 'EU data protection regulations');

INSERT INTO PrivacyCompliance (ComplianceID, Description, RegulationsFollowed)
VALUES (2, 'HIPAA Compliance', 'Healthcare data privacy rules');

-- Insert into Zone table
INSERT INTO Zone (ZoneID, CampusID, Name, Description, ImageID)
VALUES (1, 1, 'Academic Building', 'Academic offices and classrooms.', 1);

INSERT INTO Zone (ZoneID, CampusID, Name, Description, ImageID)
VALUES (2, 1, 'Parking Lot', 'Student and faculty parking area.', 2);



Results | Messages

	ZoneID	CampusID	Name	Description	ImageID
1	1	1	Academic Building	Academic offices and classrooms.	1
2	2	1	Parking Lot	Student and faculty parking area.	2

```
-- Insert into Event table
INSERT INTO Event (EventID, CampusID, Description, Date, ImpactOnTraffic)
VALUES (1, 1, 'Orientation Day', '2023-10-20', 'Temporary road closures');

INSERT INTO Event (EventID, CampusID, Description, Date, ImpactOnTraffic)
VALUES (2, 2, 'Concert in Park', '2023-11-15', 'Increased foot traffic');

-- Insert into TrafficRecords table
INSERT INTO TrafficRecords (TrafficRecordsID, ZoneID, Usage_Path, Usage_Intersection,
Usage_Gate)
VALUES (1, 1, 5, 2, 1);

INSERT INTO TrafficRecords (TrafficRecordsID, ZoneID, Usage_Path, Usage_Intersection,
Usage_Gate)
VALUES (2, 2, 3, 1, 2);

-- Insert into ParkingArea table
INSERT INTO ParkingArea (AreaID, ZoneID, Type)
VALUES (1, 2, 'Student Parking');

INSERT INTO ParkingArea (AreaID, ZoneID, Type)
VALUES (2, 2, 'Faculty Parking');

-- Insert into DataMaintenanceProtocol table
INSERT INTO DataMaintenanceProtocol (ProtocolID, Description, Frequency)
VALUES (1, 'Server Backup', 'Weekly');

INSERT INTO DataMaintenanceProtocol (ProtocolID, Description, Frequency)
VALUES (2, 'Database Optimization', 'Monthly');

-- Insert into Gate table
INSERT INTO Gate (GateID, ZoneID, Type, LocationLongitude, Location_Latitude,
Loc_X_Cordinate, Loc_Y_Cordinate, AccessControl, Usage, ImageID, Gate_Type)
VALUES (1, 1, 'Entrance Gate', 40.7128, -74.0060, 123, 456, 'Access Card', 'Pedestrian', 1,
'Security Gate');

INSERT INTO Gate (GateID, ZoneID, Type, LocationLongitude, Location_Latitude,
Loc_X_Cordinate, Loc_Y_Cordinate, AccessControl, Usage, ImageID, Gate_Type)
VALUES (2, 2, 'Parking Gate', 34.0522, -118.2437, 789, 321, 'Ticket Booth', 'Vehicle', 2,
'Parking Gate');
```

```
-- Insert into TechnologyIntegration table
INSERT INTO TechnologyIntegration (IntegrationID, ZoneID, Description, TechnologyUsed)
VALUES (1, 1, 'Smart Classroom Integration', 'Interactive whiteboards');

INSERT INTO TechnologyIntegration (IntegrationID, ZoneID, Description, TechnologyUsed)
VALUES (2, 2, 'Parking Lot Automation', 'License plate recognition');
```

Results Messages

	IntegrationID	ZoneID	Description	TechnologyUsed
1	1	1	Smart Classroom Integration	Interactive whiteboards
2	2	2	Parking Lot Automation	License plate recognition

```
-- Insert into SustainabilityInitiative table
INSERT INTO SustainabilityInitiative (InitiativeID, ZoneID, Description, IncentivesOffered)
VALUES (1, 1, 'Energy Efficiency Program', 'Solar panel installations');

INSERT INTO SustainabilityInitiative (InitiativeID, ZoneID, Description, IncentivesOffered)
VALUES (2, 2, 'Green Transportation', 'Bike racks and electric vehicle charging stations');
```

Results Messages

	InitiativeID	ZoneID	Description	IncentivesOffered
1	1	1	Energy Efficiency Program	Solar panel installations
2	2	2	Green Transportation	Bike racks and electric vehicle charging stations

```
-- Insert into TrafficFlow table
INSERT INTO TrafficFlow (TrafficFlowID, ZoneID, UsageID, TimeStamp)
VALUES (1, 1, 1, DEFAULT);
INSERT INTO TrafficFlow (TrafficFlowID, ZoneID, UsageID, TimeStamp)
VALUES (2, 2, 2, DEFAULT);

-- Insert into Route table
INSERT INTO Route (RouteID, TrafficFlowID, SourceLocation, DestinationLocation,
Distance, EstimatedTime)
VALUES (1, 1, 'Building A', 'Library', 2.5, 10);

INSERT INTO Route (RouteID, TrafficFlowID, SourceLocation, DestinationLocation,
Distance, EstimatedTime)
VALUES (2, 2, 'Parking Lot B', 'Cafeteria', 1.2, 5);
```

Results Messages

	RouteID	TrafficFlowID	SourceLocation	DestinationLocation	Distance	EstimatedTime
1	1	1	Building A	Library	2.50	10
2	2	2	Parking Lot B	Cafeteria	1.20	5

```
-- Insert into RouteGate table
INSERT INTO RouteGate (RouteID, GateID)
VALUES (1, 1);

INSERT INTO RouteGate (RouteID, GateID)
VALUES (2, 2);


-- Insert into TrafficSave table
INSERT INTO TrafficSave (TrafficRecordsID, TrafficFlowID)
VALUES (1, 1);

INSERT INTO TrafficSave (TrafficRecordsID, TrafficFlowID)
VALUES (2, 2);


-- Insert into Intersection table
INSERT INTO Intersection (IntersectionID, ZoneID, LocationLongitude, Location_Latitude,
Loc_X_Cordinate, Loc_Y_Cordinate, Usage, ImageID, Int_Type)
VALUES (1, 1, 40.7128, -74.0060, 123, 456, 'Traffic Signal', 1, '4-Way Intersection');

INSERT INTO Intersection (IntersectionID, ZoneID, LocationLongitude, Location_Latitude,
Loc_X_Cordinate, Loc_Y_Cordinate, Usage, ImageID, Int_Type)
VALUES (2, 2, 34.0522, -118.2437, 789, 321, 'Stop Sign', 2, '3-Way Intersection');

-- Insert into Path table
INSERT INTO Path (PathID, ZoneID, Type, LocationLongitude, Location_Latitude,
Loc_X_Cordinate, Loc_Y_Cordinate, Usage, Distance, ImageID, Description, Path_Type)
VALUES (1, 1, 'Walking Path', 40.7128, -74.0060, 123, 456, 'Pedestrian', 1.5, 1, 'Scenic
Walkway', 'Concrete');

INSERT INTO Path (PathID, ZoneID, Type, LocationLongitude, Location_Latitude,
Loc_X_Cordinate, Loc_Y_Cordinate, Usage, Distance, ImageID, Description, Path_Type)
VALUES (2, 2, 'Driveway', 34.0522, -118.2437, 789, 321, 'Vehicle', 0.8, 2, 'Parking Lot
Access Road', 'Asphalt');
```

	PathID	ZoneID	Type	LocationLongitude	Location_Latitude	Loc_X_Cordinate	Loc_Y_Cordinate	Usage
1	1	1	Walking Path	40.712800	-74.006000	123	456	Pedestrian
2	2	2	Driveway	34.052200	-118.243700	789	321	Vehicle

```
-- Insert into CongestionLevel table
INSERT INTO CongestionLevel (LevelID, TrafficFlowID, LevelName, LevelDescription)
VALUES (1, 1, 'Low Traffic', 'Smooth flow, minimal congestion');


INSERT INTO CongestionLevel (LevelID, TrafficFlowID, LevelName, LevelDescription)
VALUES (2, 2, 'Moderate Traffic', 'Some congestion during peak hours');


-- Insert into Usage table
INSERT INTO Usage (UsageID, GateID, PathID, IntersectionID, Usage_Path,
Usage_Intersection, Usage_Gate)
VALUES (1, 1, 1, NULL, 2, NULL, 1);


INSERT INTO Usage (UsageID, GateID, PathID, IntersectionID, Usage_Path,
Usage_Intersection, Usage_Gate)
VALUES (2, 2, NULL, 1, NULL, 3, NULL);



-- Insert into RoutePath table
INSERT INTO RoutePath (RouteID, PathID)
VALUES (1, 1);


INSERT INTO RoutePath (RouteID, PathID)
VALUES (2, 2);



-- Insert into RouteIntersect table
INSERT INTO RouteIntersect (RouteID, IntersectionID)
VALUES (1, NULL);


INSERT INTO RouteIntersect (RouteID, IntersectionID)
VALUES (2, 1);



-- Insert into TurnstileGate table
INSERT INTO TurnstileGate (GateID, NumberofArms, RotationDirection)
VALUES (1, 4, 'Clockwise');


INSERT INTO TurnstileGate (GateID, NumberofArms, RotationDirection)
VALUES (2, 3, 'Counterclockwise');
```

```
-- Insert into BoomGate table
INSERT INTO BoomGate (GateID, Length, Height, SafteyFeatures)
VALUES (1, 5.5, 2.2, 'Auto-reverse mechanism');

INSERT INTO BoomGate (GateID, Length, Height, SafteyFeatures)
VALUES (2, 4.8, 1.8, 'Manual release handle');
```

```
-- Insert into BikeGate table
INSERT INTO BikeGate (GateID, Design, PassageWidth, LockingMechanism)
VALUES (1, 'Swing Arm', 1.0, 'Combination lock');

INSERT INTO BikeGate (GateID, Design, PassageWidth, LockingMechanism)
VALUES (2, 'Vertical Bar', 0.9, 'Keyed lock');
```

Results Messages

	GateID	Design	PassageWidth	LockingMechanism
1	1	Swing Arm	1.00	Combination lock
2	2	Vertical Bar	0.90	Keyed lock

```
-- Insert into SpeedLimitZone table
INSERT INTO SpeedLimitZone (SLZoneID, CampusID, SpeedLimit, SafetyPriority)
VALUES (1, 1, 25, 'Pedestrian safety');

INSERT INTO SpeedLimitZone (SLZoneID, CampusID, SpeedLimit, SafetyPriority)
VALUES (2, 2, 35, 'Traffic control');
```

```
-- Insert into PredictiveModel table
INSERT INTO PredictiveModel (ModelID, ZoneID, Description, Parameters)
VALUES (1, 1, 'Traffic Prediction', 'Machine learning model');

INSERT INTO PredictiveModel (ModelID, ZoneID, Description, Parameters)
VALUES (2, 2, 'Energy Consumption Model', 'Statistical analysis');
```

Results Messages

	ModelID	ZoneID	Description	Parameters
1	1	1	Traffic Prediction	Machine learning model
2	2	2	Energy Consumption Model	Statistical analysis

```
-- Insert into StopStreet table
INSERT INTO StopStreet (IntersectionID, Type, Regulations)
VALUES (1, 'Stop Sign', 'Yield to oncoming traffic');


INSERT INTO StopStreet (IntersectionID, Type, Regulations)
VALUES (2, 'Stop Sign', 'Full stop required');



-- Insert into TrafficCircle table
INSERT INTO TrafficCircle (IntersectionID, Diameter, NumberofEntrances)
VALUES (1, 20.0, 4);

INSERT INTO TrafficCircle (IntersectionID, Diameter, NumberofEntrances)
VALUES (2, 15.0, 3);



-- Insert into Lane table
INSERT INTO Lane (PathID, NumberOfLanes)
VALUES (1, 2);

INSERT INTO Lane (PathID, NumberOfLanes)
VALUES (2, 1);



-- Insert into EmergencyRoute table
INSERT INTO EmergencyRoute (PathID, Access)
VALUES (1, 'Emergency Vehicles Only');

INSERT INTO EmergencyRoute (PathID, Access)
VALUES (2, 'Pedestrians and Emergency Vehicles');



-- Insert into Sidewalk table
INSERT INTO Sidewalk (PathID, Width)
VALUES (1, 1.5);

INSERT INTO Sidewalk (PathID, Width)
VALUES (2, 2.0);
```

Results | Message

	PathID	Width
1	1	1.50
2	2	2.00

3.1 SYSTEM VIEWS

```
CREATE VIEW t.TrafficFlowView AS
SELECT tf.TrafficFlowID, z.Name AS ZoneName, z.Description AS ZoneDescription,
c.Name AS CampusName, tf.Date
FROM TrafficFlow tf
JOIN Zone z ON tf.ZoneID = z.ZoneID
JOIN Campus c ON z.CampusID = c.CampusID;


CREATE VIEW GateDetailsView AS
SELECT g.GateID, g.Type, z.Name AS ZoneName, z.Description AS ZoneDescription,
g.LocationLongitude, g.Location_Latitude, g.AccessControl
FROM Gate g
JOIN Zone z ON g.ZoneID = z.ZoneID;


CREATE VIEW PathInfoView AS
SELECT p.PathID, p.Type, z.Name AS ZoneName, z.Description AS ZoneDescription,
p.LocationLongitude, p.Location_Latitude, p.Distance
FROM Path p
JOIN Zone z ON p.ZoneID = z.ZoneID;


CREATE VIEW EventImpactView AS
SELECT e.EventID, e.Description AS EventDescription, c.Name AS CampusName, e.Date,
e.ImpactOnTraffic
FROM Event e
JOIN Campus c ON e.CampusID = c.CampusID;

CREATE VIEW IntersectionView AS
SELECT i.IntersectionID, i.Usage, z.Name AS ZoneName, z.Description AS
ZoneDescription, i.LocationLongitude, i.Location_Latitude
FROM Intersection i
JOIN Zone z ON i.ZoneID = z.ZoneID;
```

4. SCHEMA GENERATED WITH SQL CODE PLAN

```
-- Create the Image table
CREATE TABLE Image (
	ImageID INT PRIMARY KEY,
	Location VARCHAR(255),
	DateCaptured DATE,
	Image VARBINARY(MAX)
);

-- Create the Campus table
CREATE TABLE Campus (
	CampusID INT PRIMARY KEY,
	Name VARCHAR(255),
	LocationLongitude DECIMAL(10, 6),
	Location_Latitude DECIMAL(10, 6),
	Loc_X_Cordinate INT,
	Loc_Y_Cordinate INT,
	Description VARCHAR(1000)
);

-- Create the PrivacyCompliance table
CREATE TABLE PrivacyCompliance (
	ComplianceID INT PRIMARY KEY,
	Description VARCHAR(1000),
	RegulationsFollowed VARCHAR(255)
);

-- Create the Zone table
CREATE TABLE Zone (
	ZoneID INT PRIMARY KEY,
	CampusID INT,
	Name VARCHAR(255),
	Description VARCHAR(1000),
	ImageID INT,
	FOREIGN KEY (CampusID) REFERENCES Campus(CampusID),
	FOREIGN KEY (ImageID) REFERENCES Image(ImageID)
);

-- Create the Event table
CREATE TABLE Event (
	EventID INT PRIMARY KEY,
	CampusID INT,
	Description VARCHAR(1000),
	Date DATE,
	ImpactOnTraffic VARCHAR(255),
	FOREIGN KEY (CampusID) REFERENCES Campus(CampusID)
);
```

```
-- Create the ParkingArea table
CREATE TABLE ParkingArea (
	AreaID INT PRIMARY KEY,
	ZoneID INT,
	Type VARCHAR(255),
	FOREIGN KEY (ZoneID) REFERENCES Zone(ZoneID)
);

-- Create the DataMaintenanceProtocol table
CREATE TABLE DataMaintenanceProtocol (
	ProtocolID INT PRIMARY KEY,
	Description VARCHAR(1000),
	Frequency VARCHAR(255)
);

-- Create the Gate table
CREATE TABLE Gate (
	GateID INT PRIMARY KEY,
	ZoneID INT,
	Type VARCHAR(255),
	LocationLongitude DECIMAL(10, 6),
	Location_Latitude DECIMAL(10, 6),
	Loc_X_Cordinate INT,
	Loc_Y_Cordinate INT,
	AccessControl VARCHAR(255),
	Usage VARCHAR(255),
	ImageID INT,
	Gate_Type VARCHAR(255),
	FOREIGN KEY (ZoneID) REFERENCES Zone(ZoneID),
	FOREIGN KEY (ImageID) REFERENCES Image(ImageID)
);

-- Create the TechnologyIntegration table
CREATE TABLE TechnologyIntegration (
	IntegrationID INT PRIMARY KEY,
	ZoneID INT,
	Description VARCHAR(1000),
	TechnologyUsed VARCHAR(255),
	FOREIGN KEY (ZoneID) REFERENCES Zone(ZoneID)
);

-- Create the SustainabilityInitiative table
CREATE TABLE SustainabilityInitiative (
	InitiativeID INT PRIMARY KEY,
	ZoneID INT,
	Description VARCHAR(1000),
	IncentivesOffered VARCHAR(255),
	FOREIGN KEY (ZoneID) REFERENCES Zone(ZoneID)
);
```

```
-- Create the TrafficFlow table
CREATE TABLE TrafficFlow (
	TrafficFlowID INT PRIMARY KEY,
	ZoneID INT,
	UsageID INT,
	TimeStamp TIMESTAMP,
	FOREIGN KEY (ZoneID) REFERENCES Zone(ZoneID)
);

-- Create the Route table
CREATE TABLE Route (
	RouteID INT PRIMARY KEY,
	TrafficFlowID INT,
	SourceLocation VARCHAR(255),
	DestinationLocation VARCHAR(255),
	Distance DECIMAL(10, 2),
	EstimatedTime INT,
	FOREIGN KEY (TrafficFlowID) REFERENCES TrafficFlow(TrafficFlowID)
);

-- Create the RouteGate table
CREATE TABLE RouteGate (
	RouteID INT,
	GateID INT,
	PRIMARY KEY (RouteID, GateID),
	FOREIGN KEY (RouteID) REFERENCES Route(RouteID),
	FOREIGN KEY (GateID) REFERENCES Gate(GateID)
);

-- Create the TrafficRecords table
CREATE TABLE TrafficRecords (
	TrafficRecordsID INT PRIMARY KEY,
	ZoneID INT,
	Usage_Path INT,
	Usage_Intersection INT,
	Usage_Gate INT,
	FOREIGN KEY (ZoneID) REFERENCES Zone(ZoneID)
);

-- Create the TrafficSave table
CREATE TABLE TrafficSave (
	TrafficRecordsID INT,
	TrafficFlowID INT,
	PRIMARY KEY (TrafficRecordsID, TrafficFlowID),
	FOREIGN KEY (TrafficRecordsID) REFERENCES TrafficRecords(TrafficRecordsID),
	FOREIGN KEY (TrafficFlowID) REFERENCES TrafficFlow(TrafficFlowID)
);
```

```
-- Create the CongestionLevel table
CREATE TABLE CongestionLevel (
	LevelID INT PRIMARY KEY,
	TrafficFlowID INT,
	LevelName VARCHAR(255),
	LevelDescription VARCHAR(1000),
	FOREIGN KEY (TrafficFlowID) REFERENCES TrafficFlow(TrafficFlowID)
);

-- Create the Intersection table
CREATE TABLE Intersection (
	IntersectionID INT PRIMARY KEY,
	ZoneID INT,
	LocationLongitude DECIMAL(10, 6),
	Location_Latitude DECIMAL(10, 6),
	Loc_X_Cordinate INT,
	Loc_Y_Cordinate INT,
	Usage VARCHAR(255),
	ImageID INT,
	Int_Type VARCHAR(255),
	FOREIGN KEY (ZoneID) REFERENCES Zone(ZoneID),
	FOREIGN KEY (ImageID) REFERENCES Image(ImageID)
);

-- Create the Path table
CREATE TABLE Path (
	PathID INT PRIMARY KEY,
	ZoneID INT,
	Type VARCHAR(255),
	LocationLongitude DECIMAL(10, 6),
	Location_Latitude DECIMAL(10, 6),
	Loc_X_Cordinate INT,
	Loc_Y_Cordinate INT,
	Usage VARCHAR(255),
	Distance DECIMAL(10, 2),
	ImageID INT,
	Description VARCHAR(1000),
	Path_Type VARCHAR(255),
	FOREIGN KEY (ZoneID) REFERENCES Zone(ZoneID),
	FOREIGN KEY (ImageID) REFERENCES Image(ImageID)
);
```

```
-- Create the Usage table
CREATE TABLE Usage (
	UsageID INT PRIMARY KEY,
	GateID INT,
	PathID INT,
	IntersectionID INT,
	Usage_Path INT,
	Usage_Intersection INT,
	Usage_Gate INT,
	FOREIGN KEY (GateID) REFERENCES Gate(GateID),
	FOREIGN KEY (PathID) REFERENCES Path(PathID),
	FOREIGN KEY (IntersectionID) REFERENCES Intersection(IntersectionID)
);

-- Create the RoutePath table
CREATE TABLE RoutePath (
	RouteID INT,
	PathID INT,
	PRIMARY KEY (RouteID, PathID),
	FOREIGN KEY (RouteID) REFERENCES Route(RouteID),
	FOREIGN KEY (PathID) REFERENCES Path(PathID)
);

-- Create the RouteIntersect table
CREATE TABLE RouteIntersect (
	RouteID INT,
	IntersectionID INT,
	PRIMARY KEY (RouteID, IntersectionID),
	FOREIGN KEY (RouteID) REFERENCES Route(RouteID),
	FOREIGN KEY (IntersectionID) REFERENCES Intersection(IntersectionID)
);

-- Create the TurnstileGate table
CREATE TABLE TurnstileGate (
	GateID INT,
	NumberofArms INT,
	RotationDirection VARCHAR(255),
	PRIMARY KEY (GateID),
	FOREIGN KEY (GateID) REFERENCES Gate(GateID)
);

-- Create the BoomGate table
CREATE TABLE BoomGate (
	GateID INT,
	Length DECIMAL(10, 2),
	Height DECIMAL(10, 2),
	SafteyFeatures VARCHAR(255),
	PRIMARY KEY (GateID),
	FOREIGN KEY (GateID) REFERENCES Gate(GateID)
);
```

```
-- Create the BikeGate table
CREATE TABLE BikeGate (
	GateID INT,
	Design VARCHAR(255),
	PassageWidth DECIMAL(10, 2),
	LockingMechanism VARCHAR(255),
	PRIMARY KEY (GateID),
	FOREIGN KEY (GateID) REFERENCES Gate(GateID)
);

-- Create the SpeedLimitZone table
CREATE TABLE SpeedLimitZone (
	SLZoneID INT PRIMARY KEY,
	CampusID INT,
	SpeedLimit INT,
	SafetyPriority VARCHAR(255),
	FOREIGN KEY (CampusID) REFERENCES Campus(CampusID)
);


-- Create the PredictiveModel table
CREATE TABLE PredictiveModel (
	ModelID INT PRIMARY KEY,
	ZoneID INT,
	Description VARCHAR(1000),
	Parameters VARCHAR(255),
	FOREIGN KEY (ZoneID) REFERENCES Zone(ZoneID)
);

-- Create the StopStreet table
CREATE TABLE StopStreet (
	IntersectionID INT PRIMARY KEY,
	Type VARCHAR(255),
	Regulations VARCHAR(255)
);

-- Create the TrafficCircle table
CREATE TABLE TrafficCircle (
	IntersectionID INT PRIMARY KEY,
	Diameter DECIMAL(10, 2),
	NumberofEntrances INT
);

-- Create the Lane table
CREATE TABLE Lane (
	PathID INT,
	NumberOfLanes INT,
	PRIMARY KEY (PathID),
	FOREIGN KEY (PathID) REFERENCES Path(PathID)
);
```

```
-- Create the EmergencyRoute table
CREATE TABLE EmergencyRoute (
	PathID INT,
	Access VARCHAR(255),
	PRIMARY KEY (PathID),
	FOREIGN KEY (PathID) REFERENCES Path(PathID)
);

-- Create the Sidewalk table
CREATE TABLE Sidewalk (
	PathID INT,
	Width DECIMAL(10, 2),
	PRIMARY KEY (PathID),
	FOREIGN KEY (PathID) REFERENCES Path(PathID)
);
```