



LOCAL AUTHORITY ROADS CONFERENCE and EXHIBITION – 2022

Capturing Active Travel Pedestrian and Cycling Infrastructure on MapRoad

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Road Management Office



Active Travel Investment ?



- New Rural Active Travel Investment Programme Distributes over €70 Million in year one of a five-year plan.
- €240m to Dublin, the GDA and regional cities
- Circa 1000 projects in 2022



Why Asset Management ?



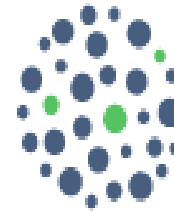
An Roinn Caiteachais Phoiblí agus Athchóirithe Department of Public Expenditure and Reform

The Department of Public Expenditure and Reform's (DPER) responsibility in overseeing effective and efficient public investment is to in part.

“Gather information from departments relating to project and programme progress and compile the overall Investment Projects and Programmes Tracker and related outputs.”



Why Asset Management ?



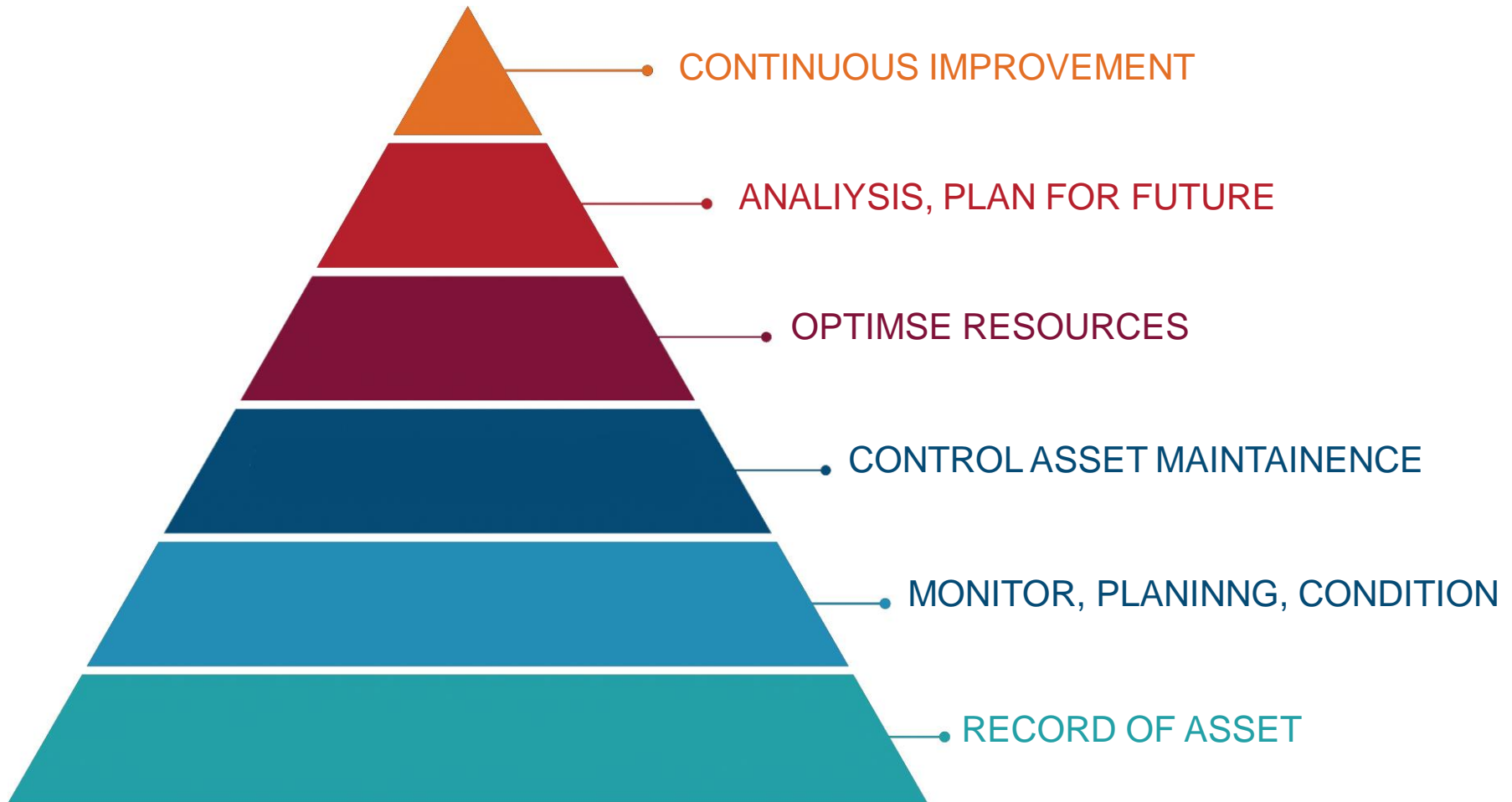
Rialtas Áitiúil Éireann
Local Government Ireland

NTA, Active Travel Allocation Letter stated.

.....All Local Authorities must upload and maintain full records of all active travel projects implemented during 2021 and 2022..... Any active travel interventions across other grant categories (for any Government Department or Agency) or using own resources must also be uploaded to MapRoad. The payment of grants is linked to this requirement.'



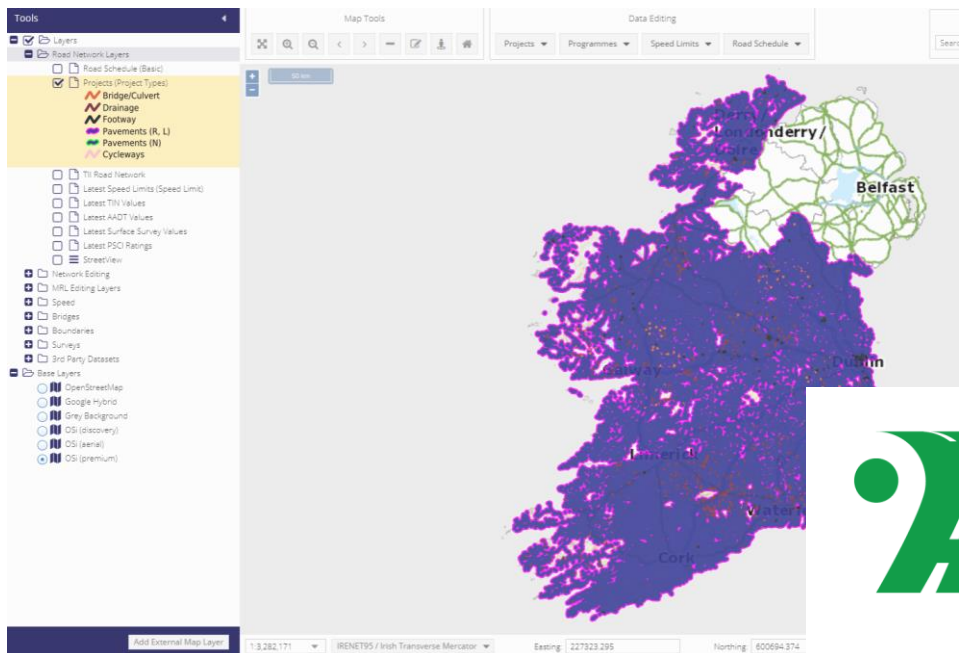
Why Asset Management ?





Why MapRoad Pavement Management System (PMS) ?

- PMS is the road asset management system used by Local Authorities,
- Core software architecture and processes exists for asset capture in MapRoad



- Circa 8,000 projects recorded in 2021.
- Including 200 cycleway and footway projects

 MAPROAD
Pavements



What was the First Step?

Technical Working Group. (TWG) was assembled in 2021



An Roinn Iompair
Department of Transport



Dublin City Council
Comhairle Cathrach Bhaile Átha Cliath



Comhairle Chontae na Gaillimhe
Galway County Council



SLIGO
COUNTY COUNCIL
COMHAIRLE CHONTAE SHLIGH





TWG Objectives and Tasks ?



Objective A. Review Active Travel Infrastructure terminology.

Task #1. Identify terminology and definitions for Active Travel (ATI) Infrastructure.

Task #2. Consider terminology and definitions Active Travel (ATI) Infrastructure.



TWG Objectives and Tasks ?



Objective B. Specify Active Travel Infrastructure asset management tools for MapRoad

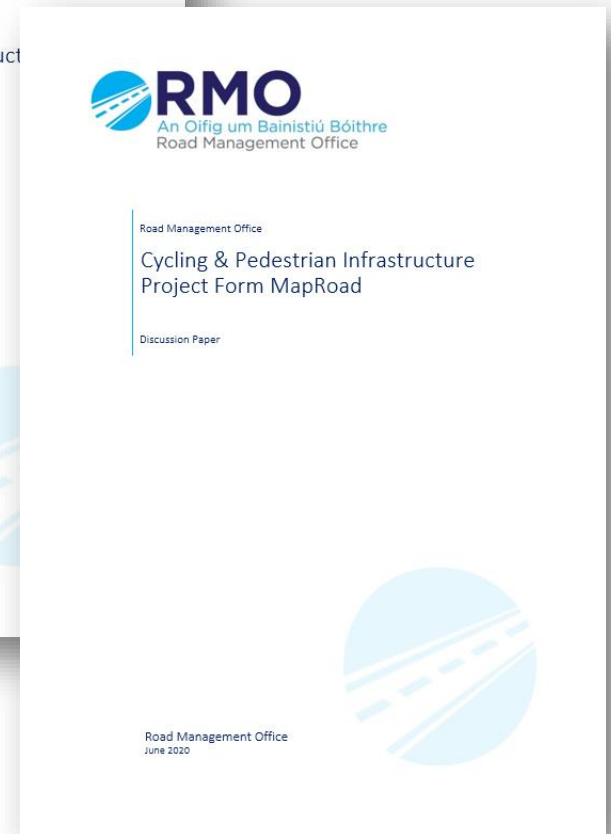
Task #1. Determine how Active Travel (ATI) Infrastructure inventory should be captured in MapRoad.

Task #2. Develop project forms including what information should be provided e.g., materials, lane definitions etc.

Task #3. Develop a works requirements document(s) for Active Travel (ATI) Infrastructure. MapRoad module.

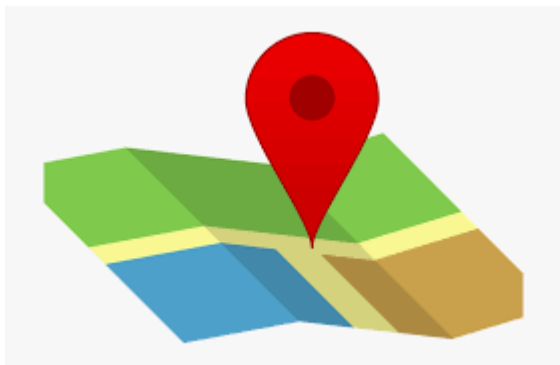


TWG Discussion Papers.





ATI Inventory Capture Requirements?



Where ?

Attributes ?

ATI

Classification ?

Description ?

Group ?

Modal Usage ?

Segregation Type ?

Naming Ref ?

Direction Travel ?

Width ?

Urban/Rural ?

Elevation ?

Public/Private ?

Surface ?

Grade (easy, moderate, advanced)?

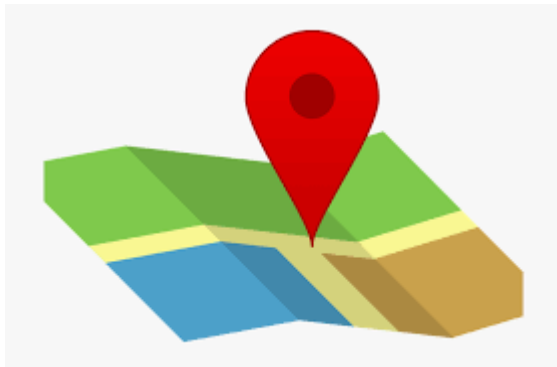
Cycle Traffic Counts?



ATI Project Capture Requirements



Expenditure ?



Where ?

Attributes ?

ATI

Project Name ?

Year ?

Construction Date ?

Length and Chainage?

Width and Area?

Construction Method ?

Materials Used, Surface Material ?

Delineation ?

Funding Sources; NTA, TII ,

Own Resources etc ?

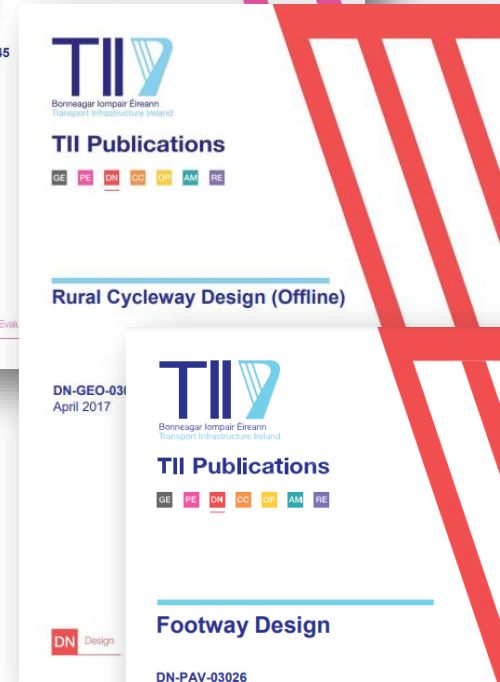
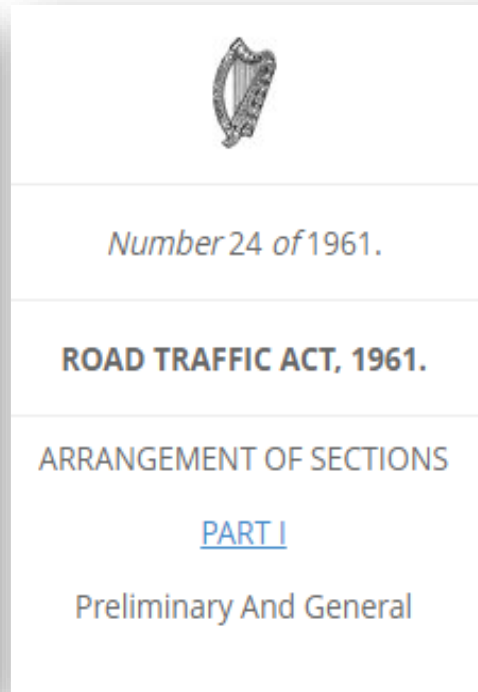
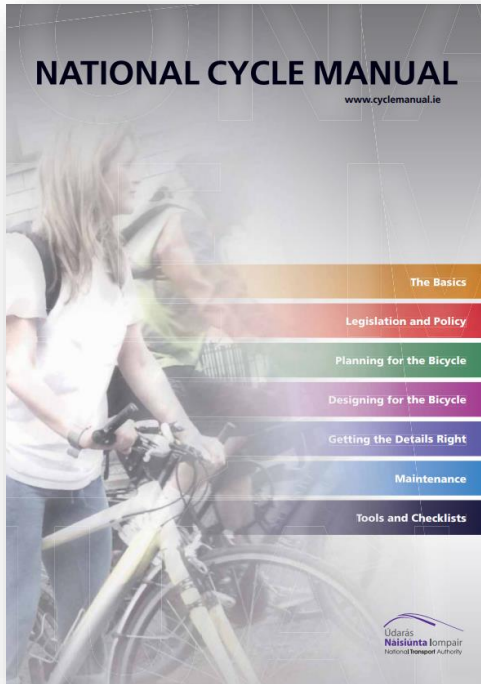
Project Files, Drawings, Photos etc?

Project Life Cycle Process;

Planned, Scheduled , Complete ?



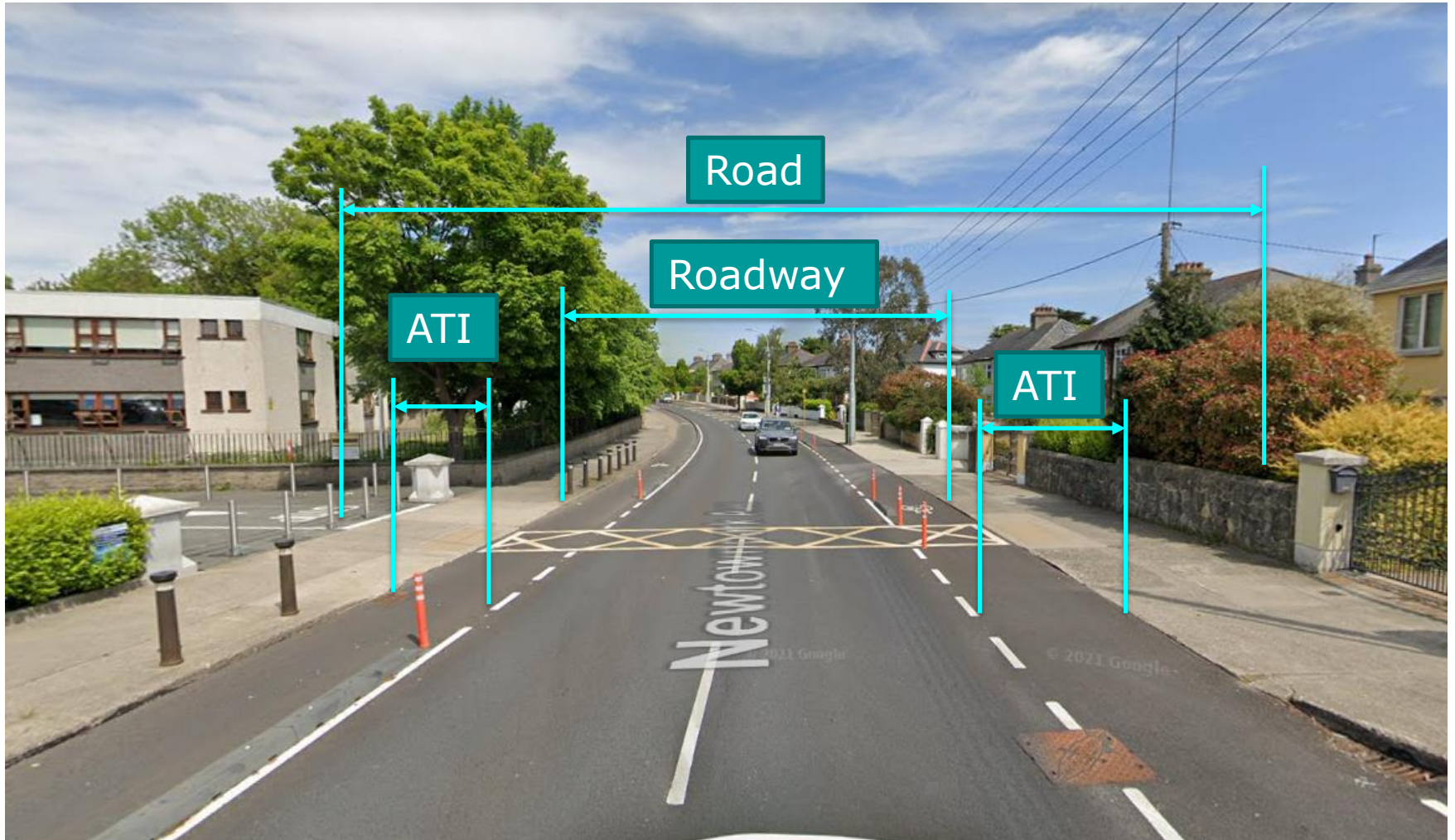
Supporting Documents?



- Terms and Guidance
- Legal
- Design Standards, Materials



ATI Group A



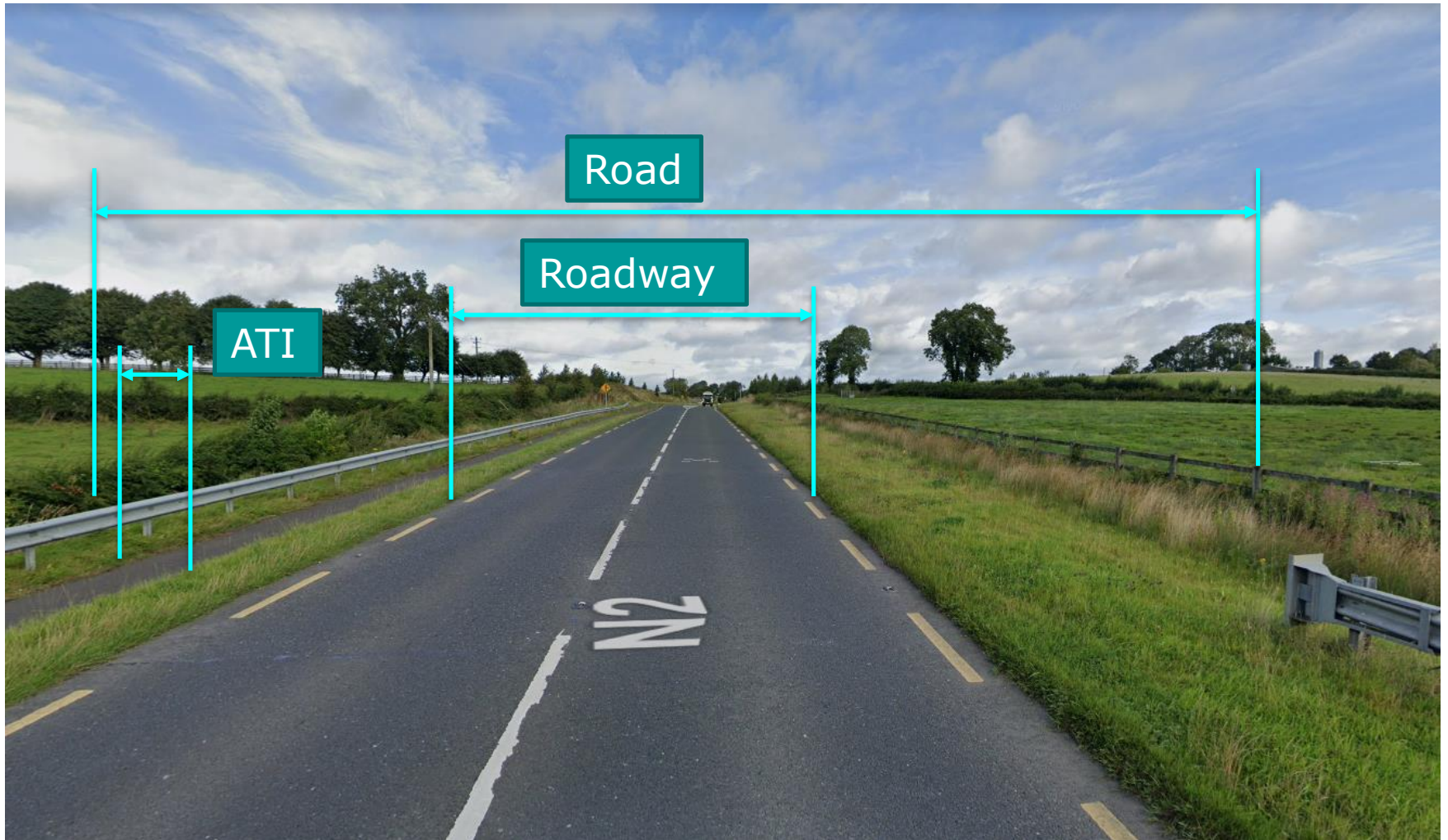


Cycling in Bus Lane

ATIs that occupy space on the roadway these can be shared or segregated from motorised traffic with road markings or physical delineation



ATI Group B





Shared Active Travel Facility

ATIs that occupy space adjacent to the roadway or are part of a road, these can be shared and are physically segregated from motorised traffic.



ATI Group C



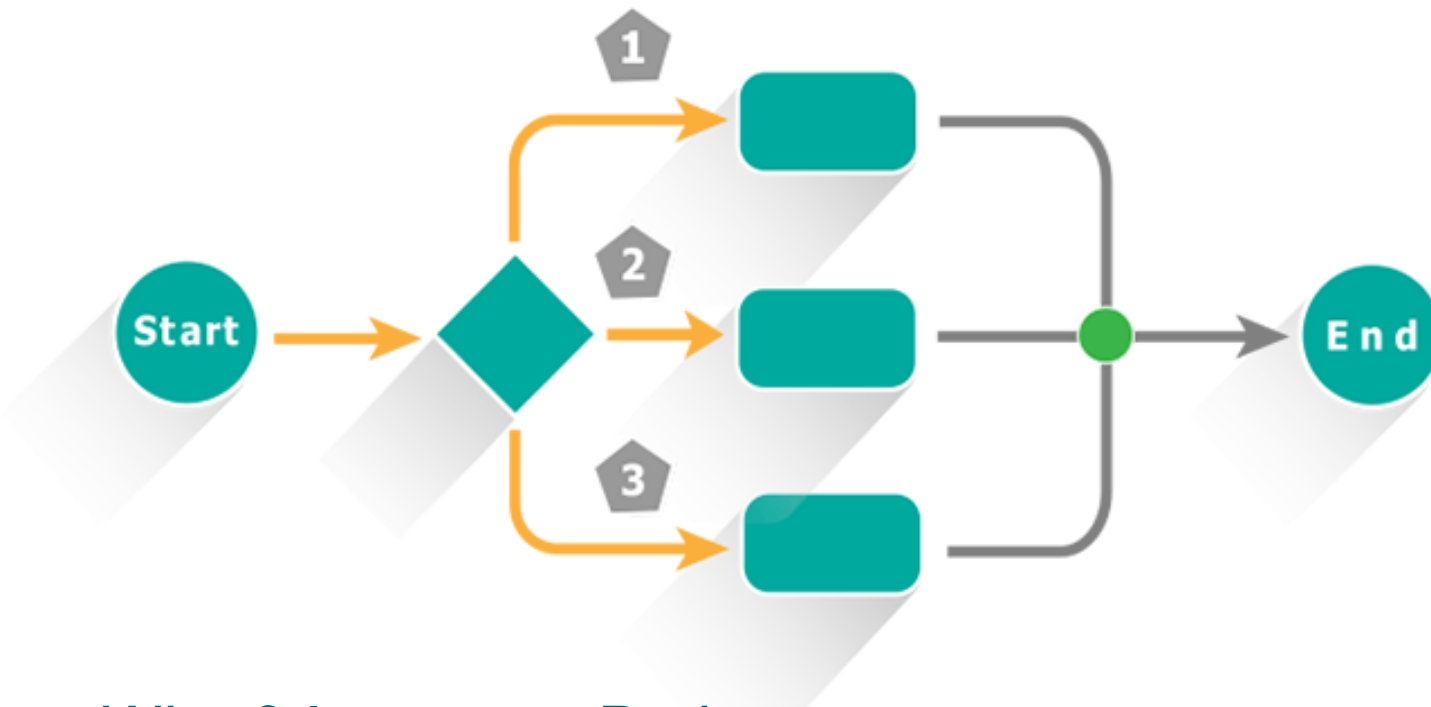


Greenway

ATIs that occupy space free of motorised vehicular traffic.



Required System Capture Process?



- Who ? Inventory, Projects
- When ? Phase logic to Inventory and Project Capture
- Verification, Validation of Data ?



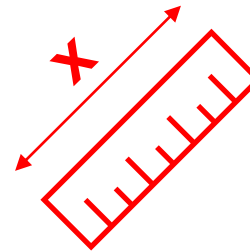
Required Software Tools?



- How ? Inventory, Projects
- When? Phase.
- Verification, Validation ? Controlled Data Inputs
- Reporting ? Yearly Outputs, Monthly Reports



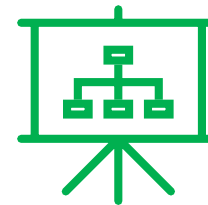
ATI's by location



No. of, Length,
width, area



Expenditure



Analysis; materials,
condition, maintenance



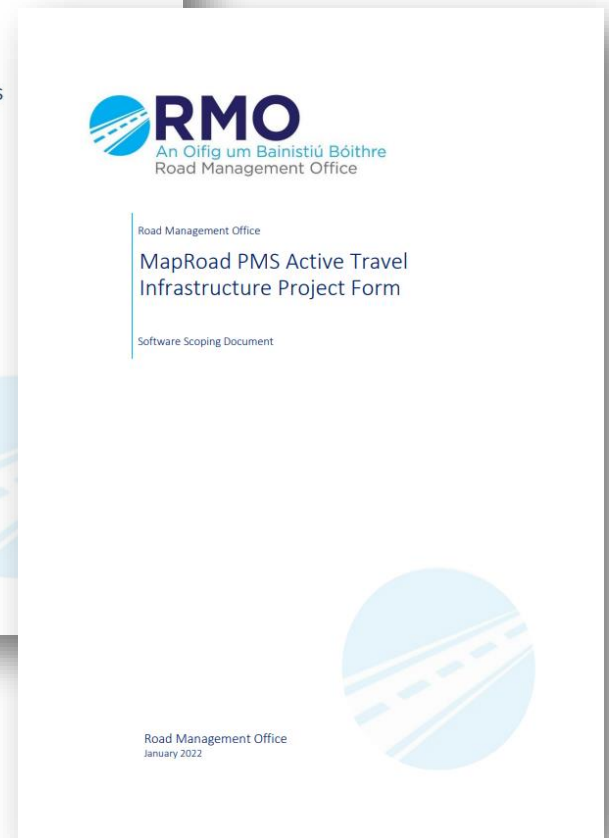
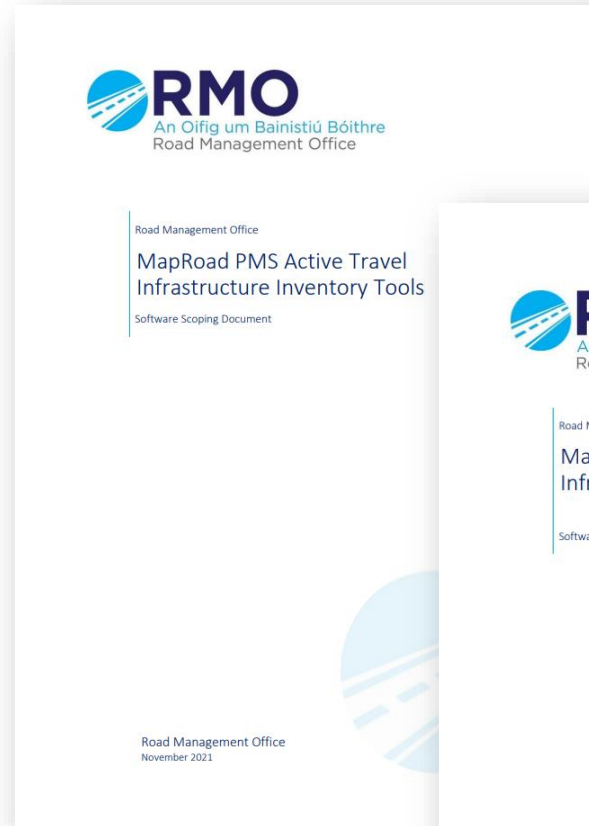
Year on year outputs,
Continual improvement



Delivered. Nov 2021

Software Development

Scoping Documents.





- 3 Key Areas for Development.

Schedule

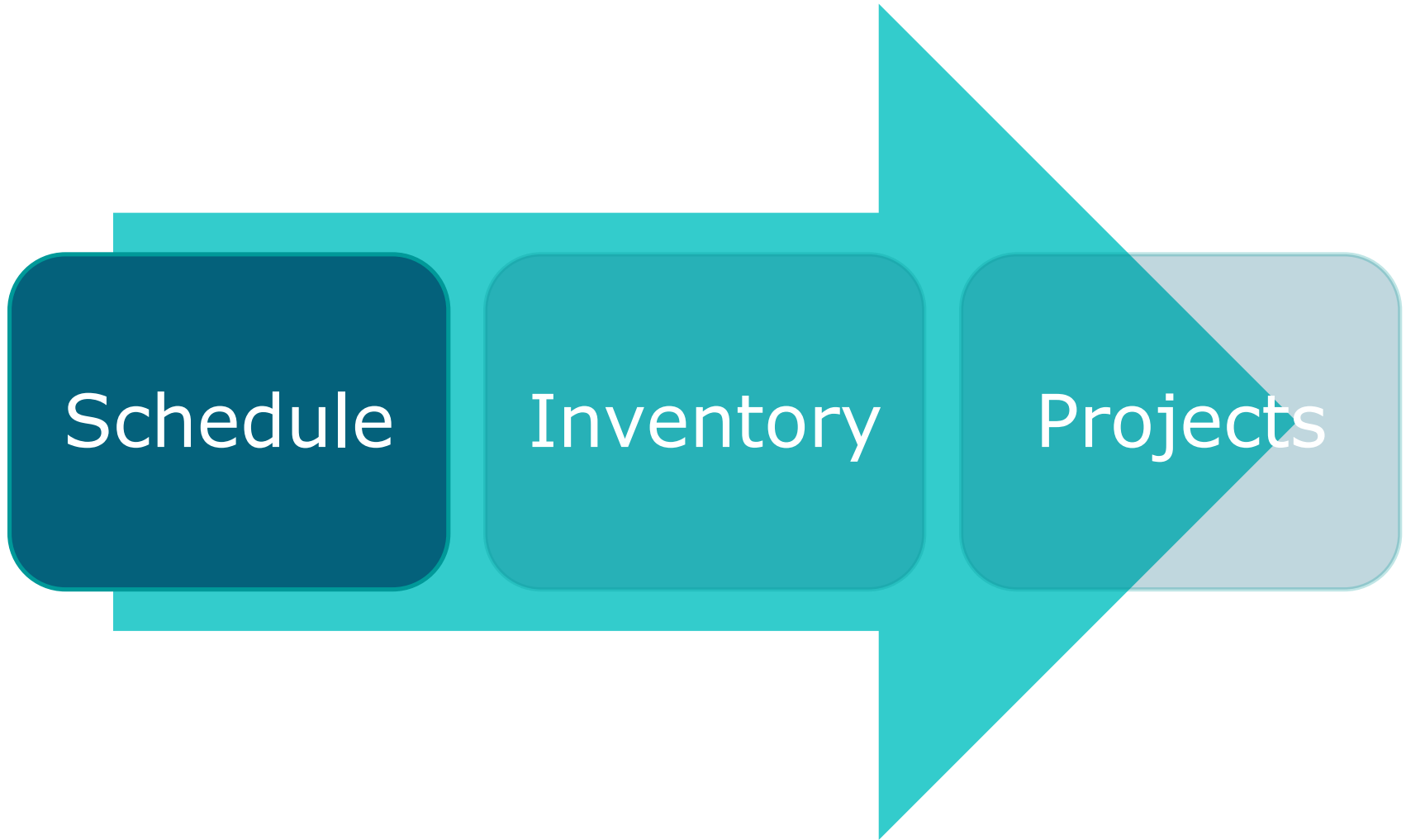
Inventory

Projects



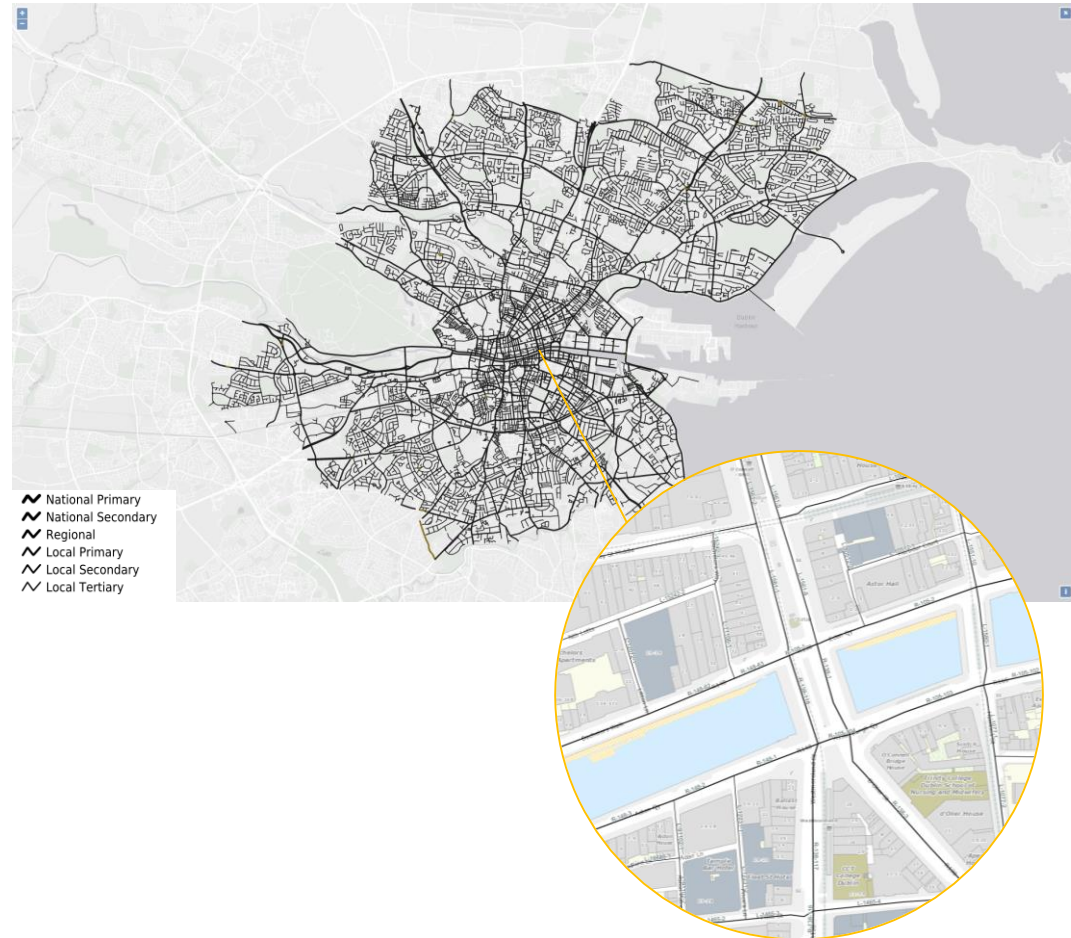
Asset Management Tools

- How we propose to accommodate Active Travel Infrastructure in MapRoad?





- MapRoad currently uses the OSI Prime 2 linework as a baseline network for public roads.
- The linework in this case is the centreline of the **Roadway**.
- Inventory data is captured against the spatial linework.
- The following slides will demonstrate how we propose to create the linework for ATI.



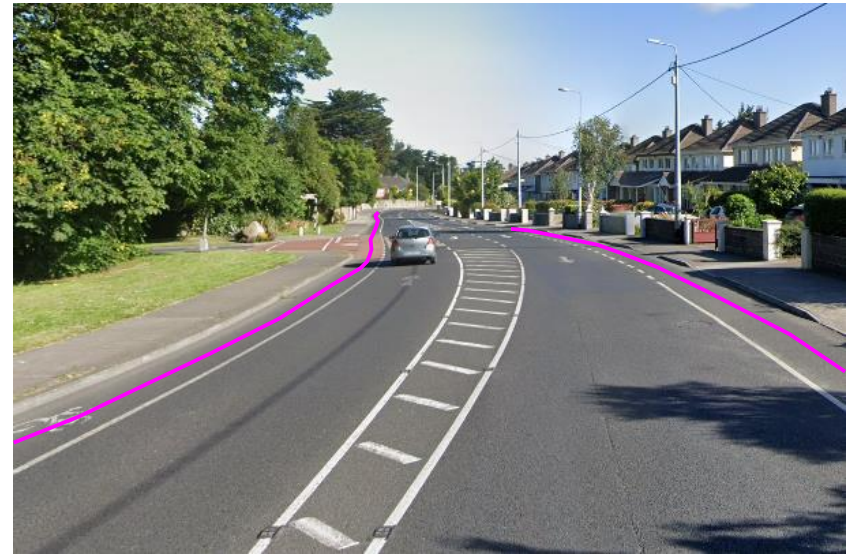
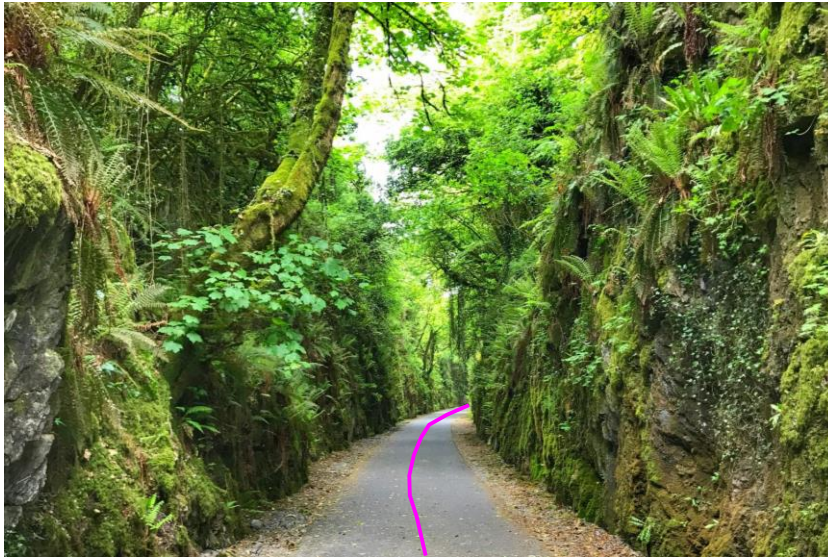


- ATI's take many forms.





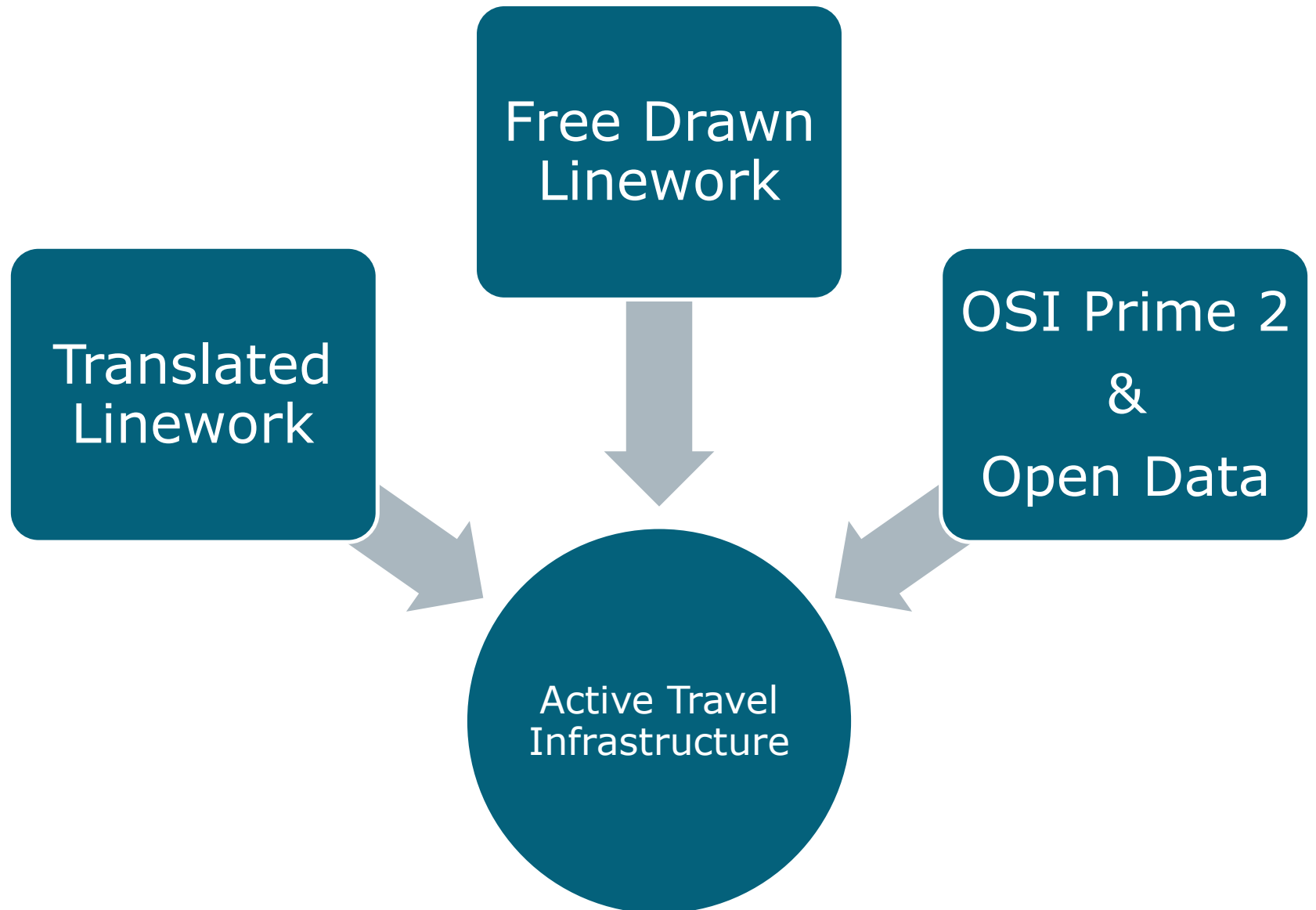
- It is proposed to provide independent linework for ATI's.

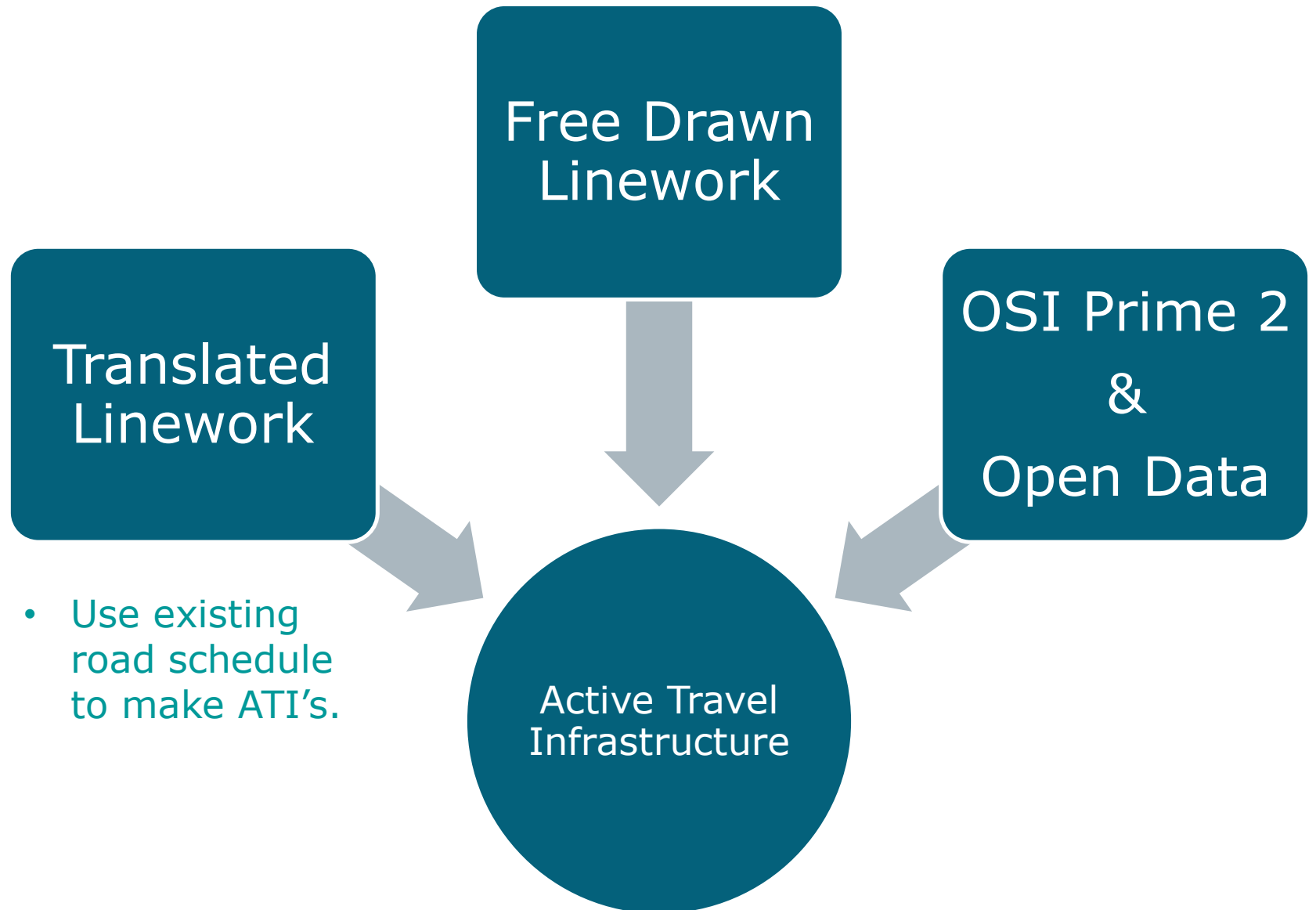


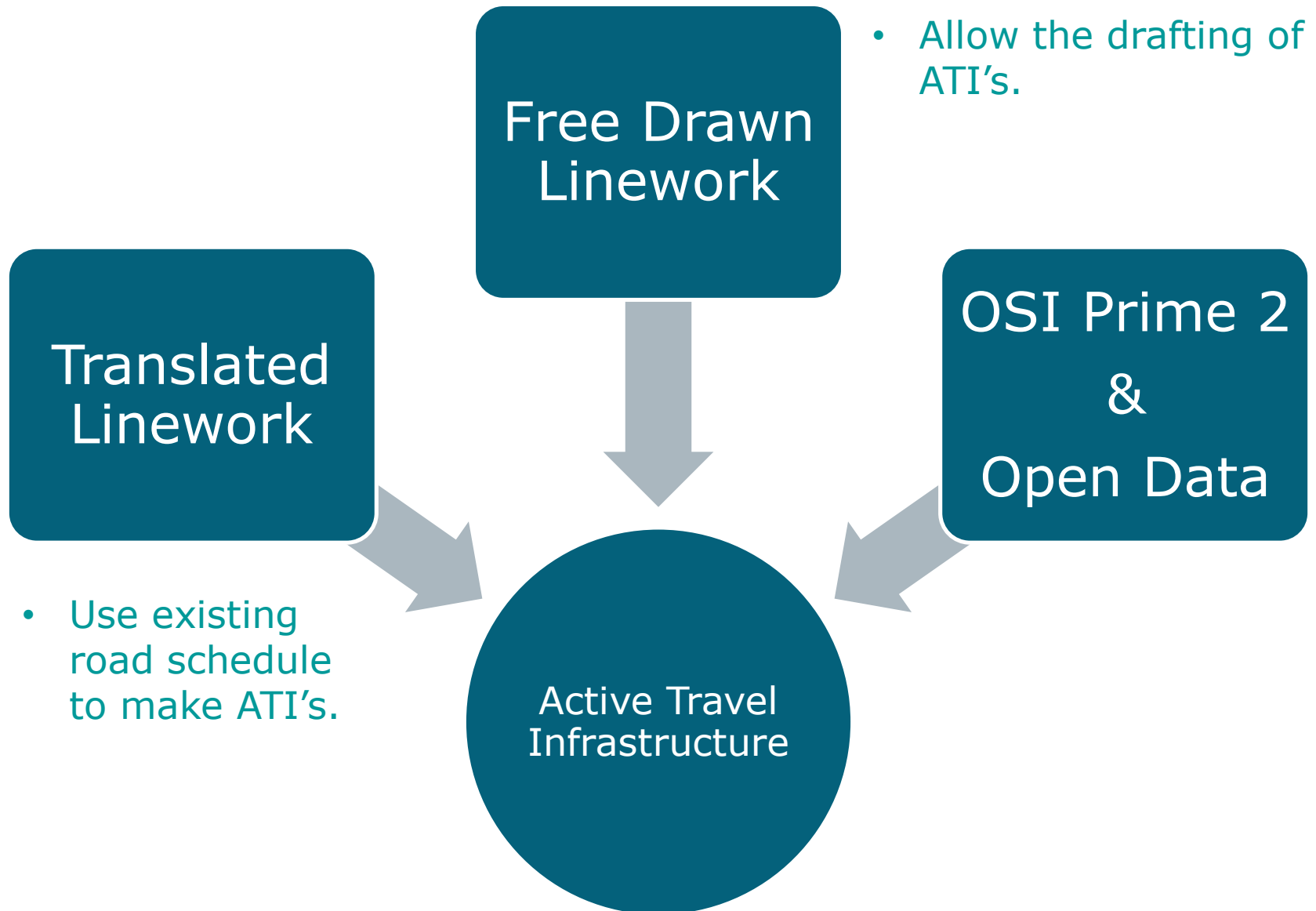


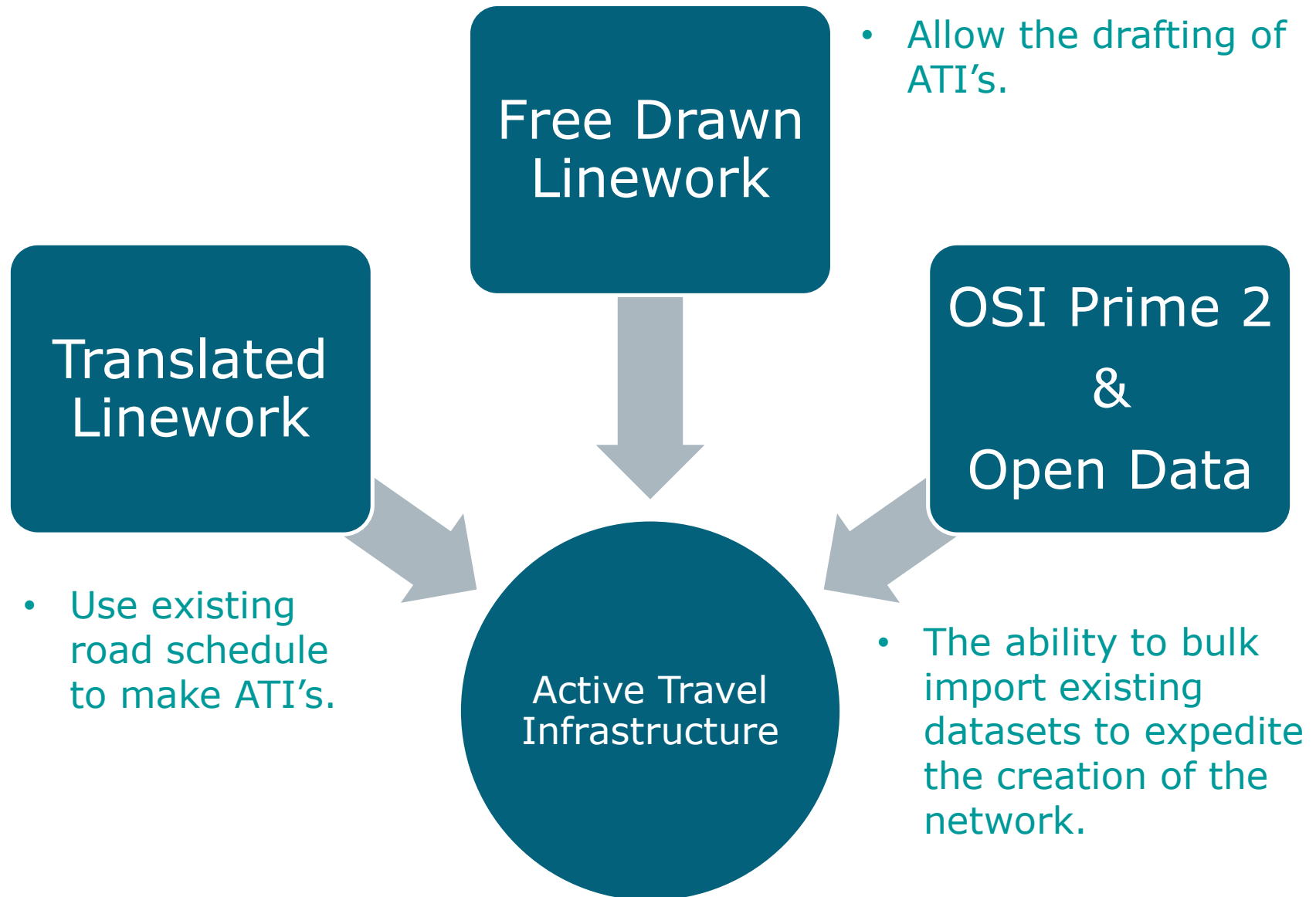
Asset Management Tools

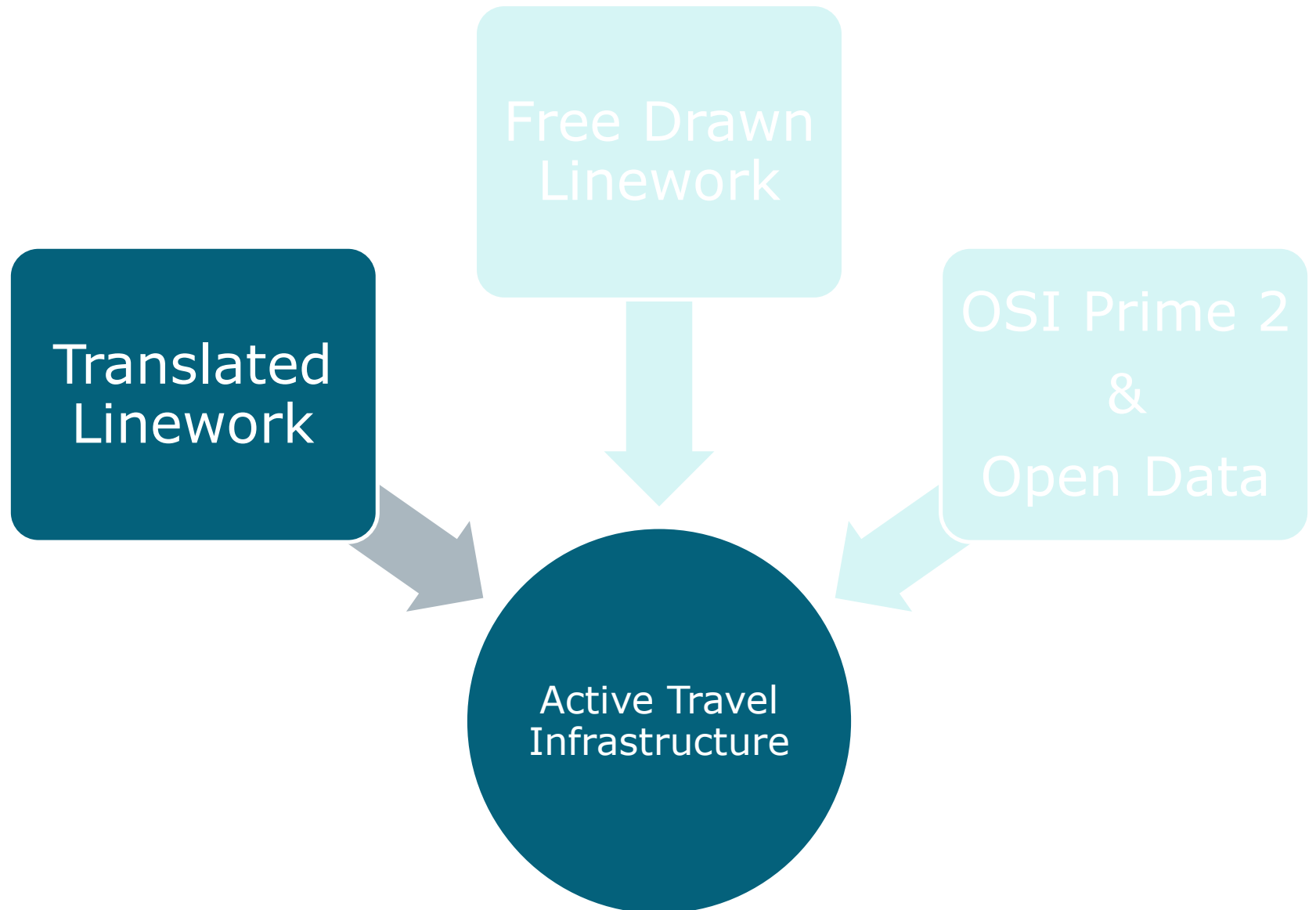
- ~~How we propose to accommodate Active Travel Infrastructure in MapRoad?~~
- What software solutions have been considered to enable Active Travel Infrastructure to be established?













- Roadway inclusive of At-Grade ATI's.

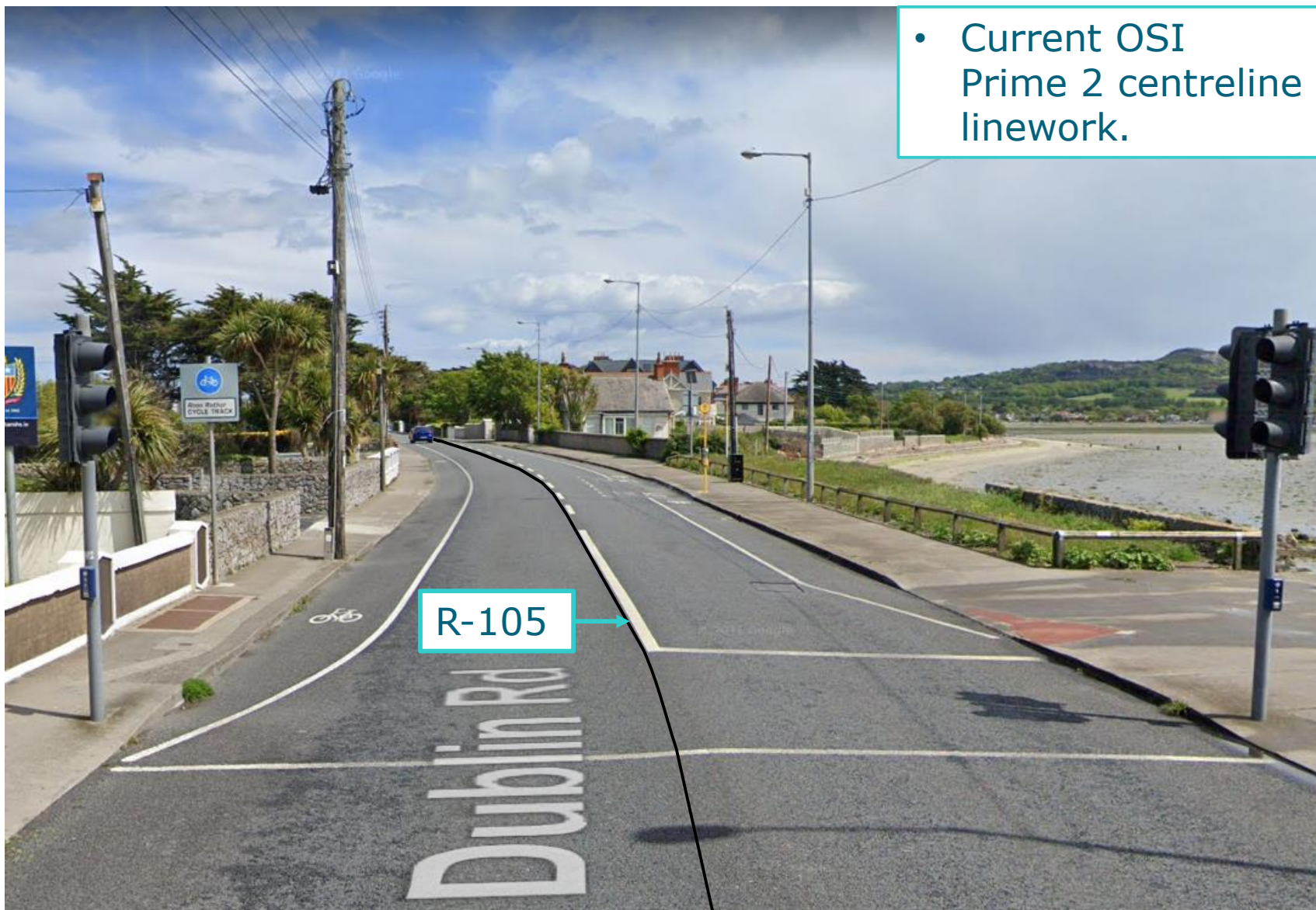




- Section of Roadway predominately for Vehicular Traffic.



- Sections of the Roadway predominately for Cyclists.



- Current OSI Prime 2 centreline linework.

R-105



- Select a Start/End Point along the Road centreline.



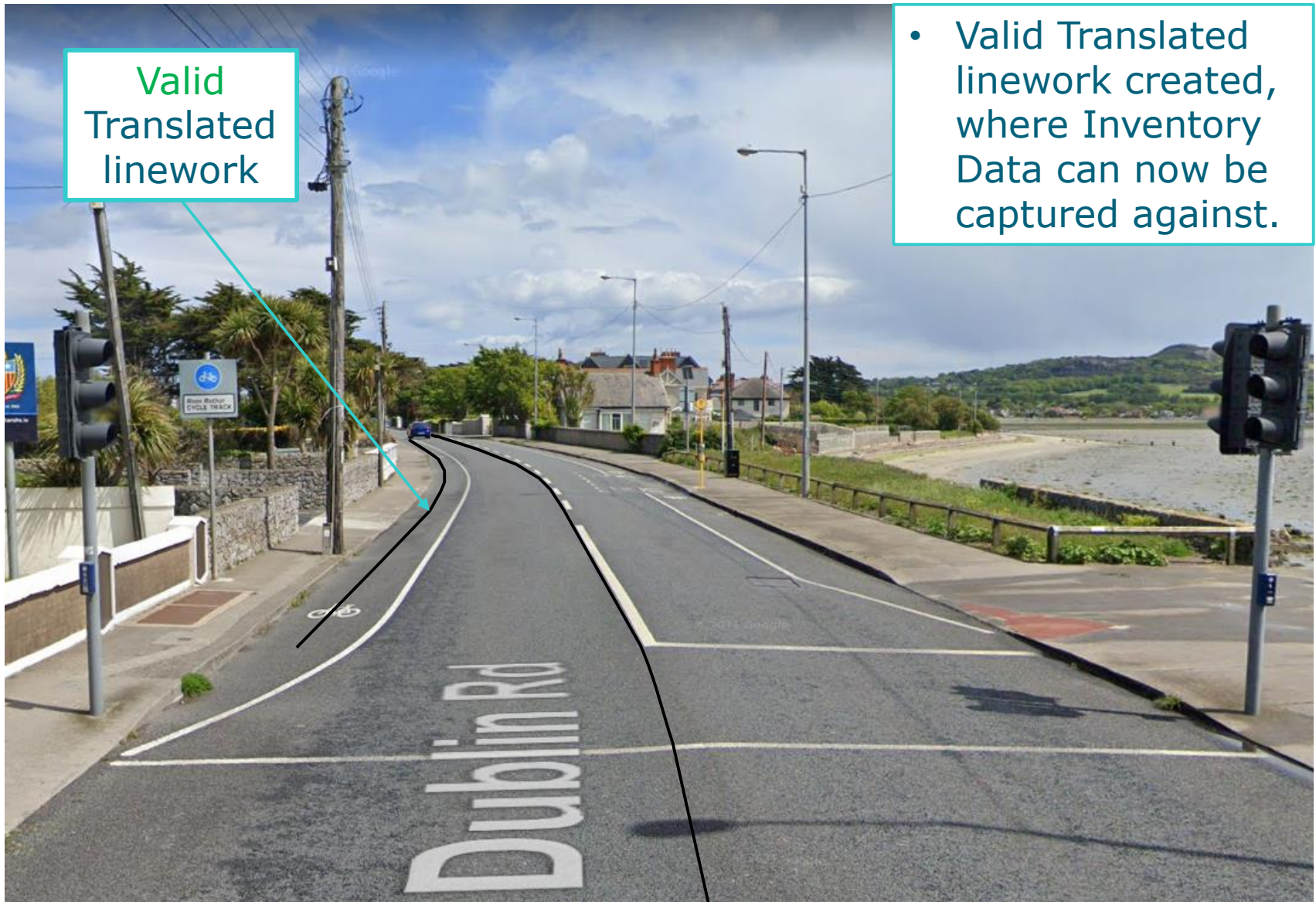
- Specify an offset to an ATI.





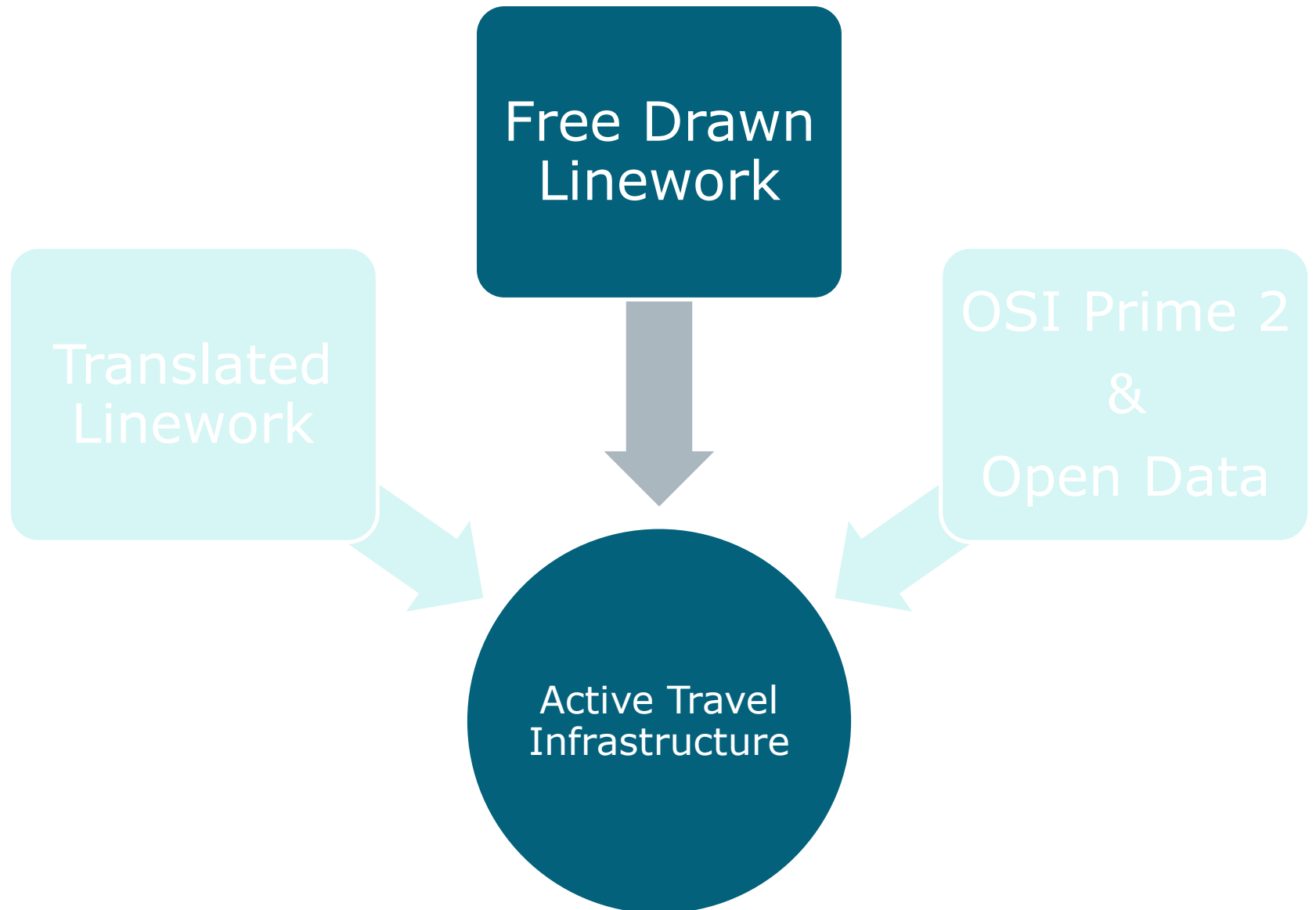
- ATI edge created using existing centreline geometry.

Enter Offset (m) = 2



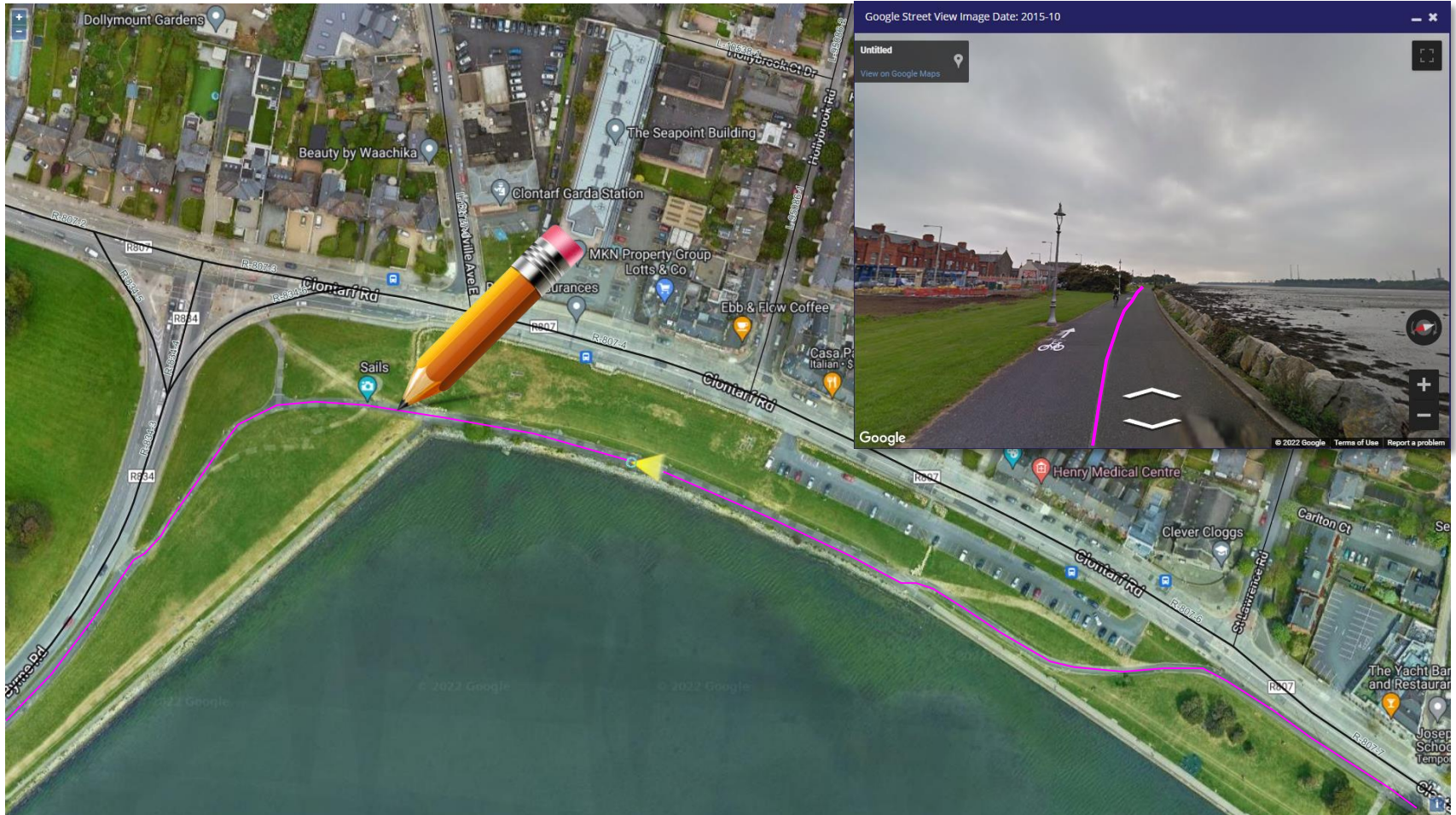
Valid
Translated
linework

- Valid Translated linework created, where Inventory Data can now be captured against.

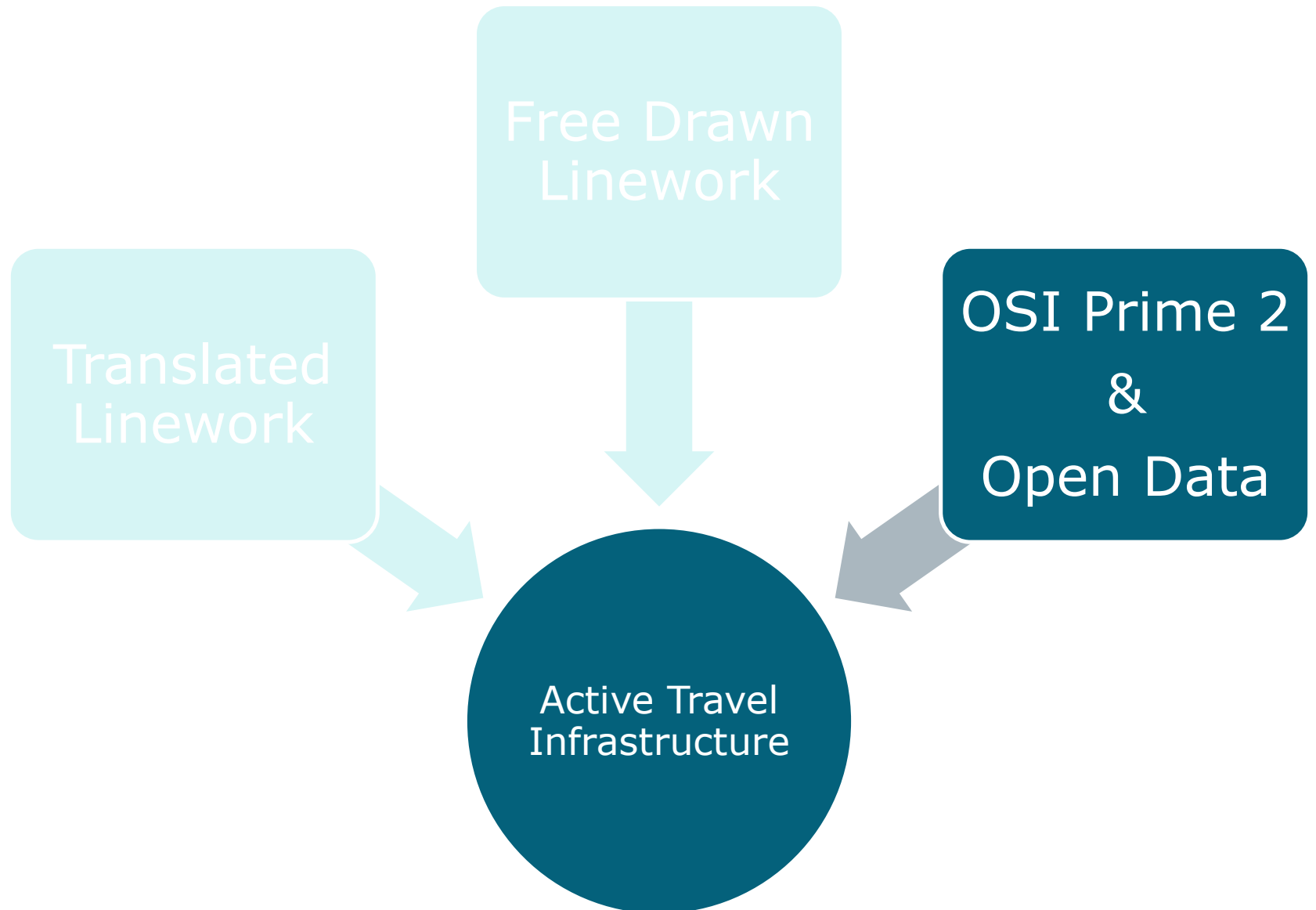




- Where ATI's currently have no linework.

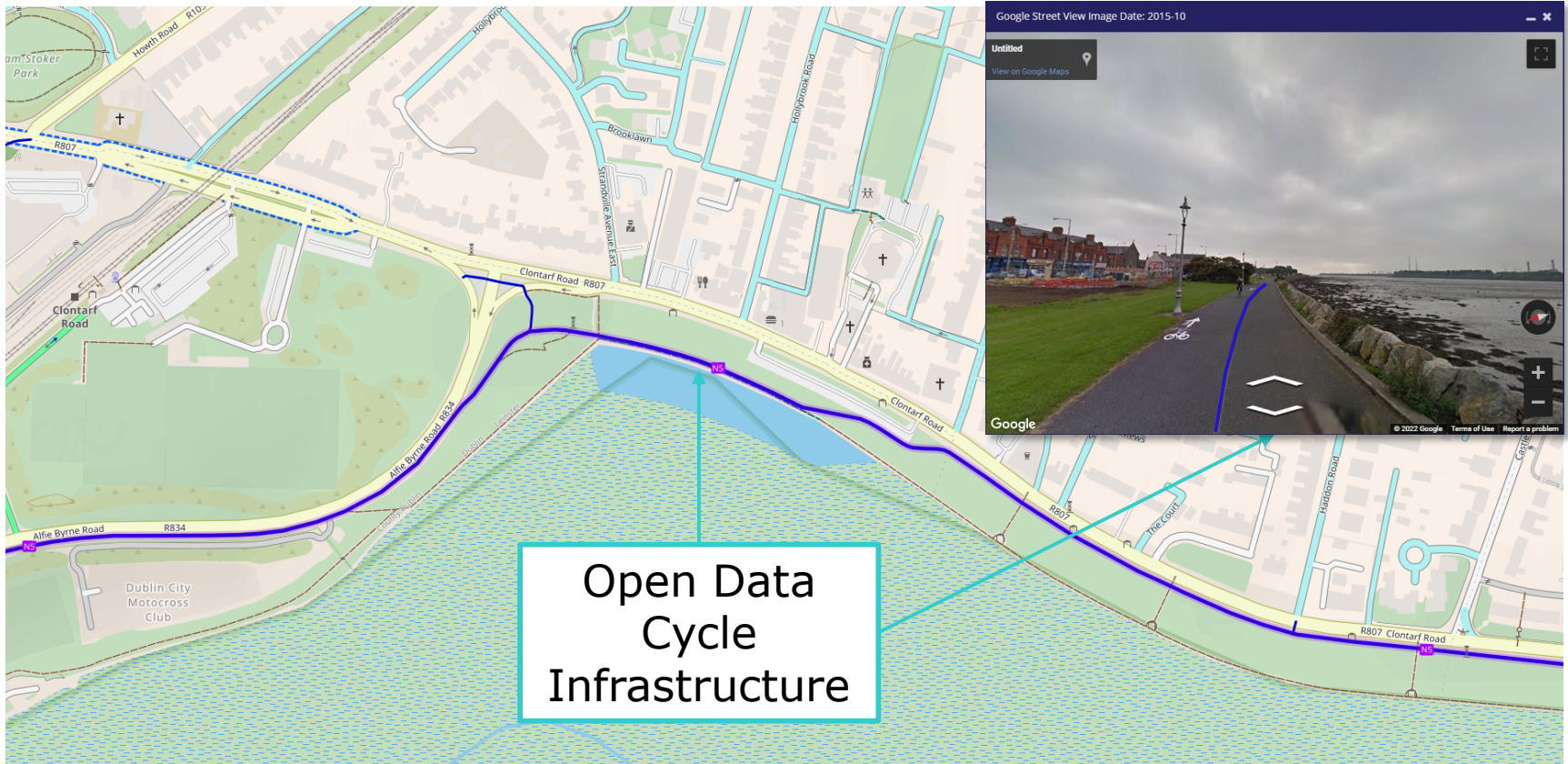


- Solutions have been proposed to facilitate a free draw tool to add new Linework to the Network.

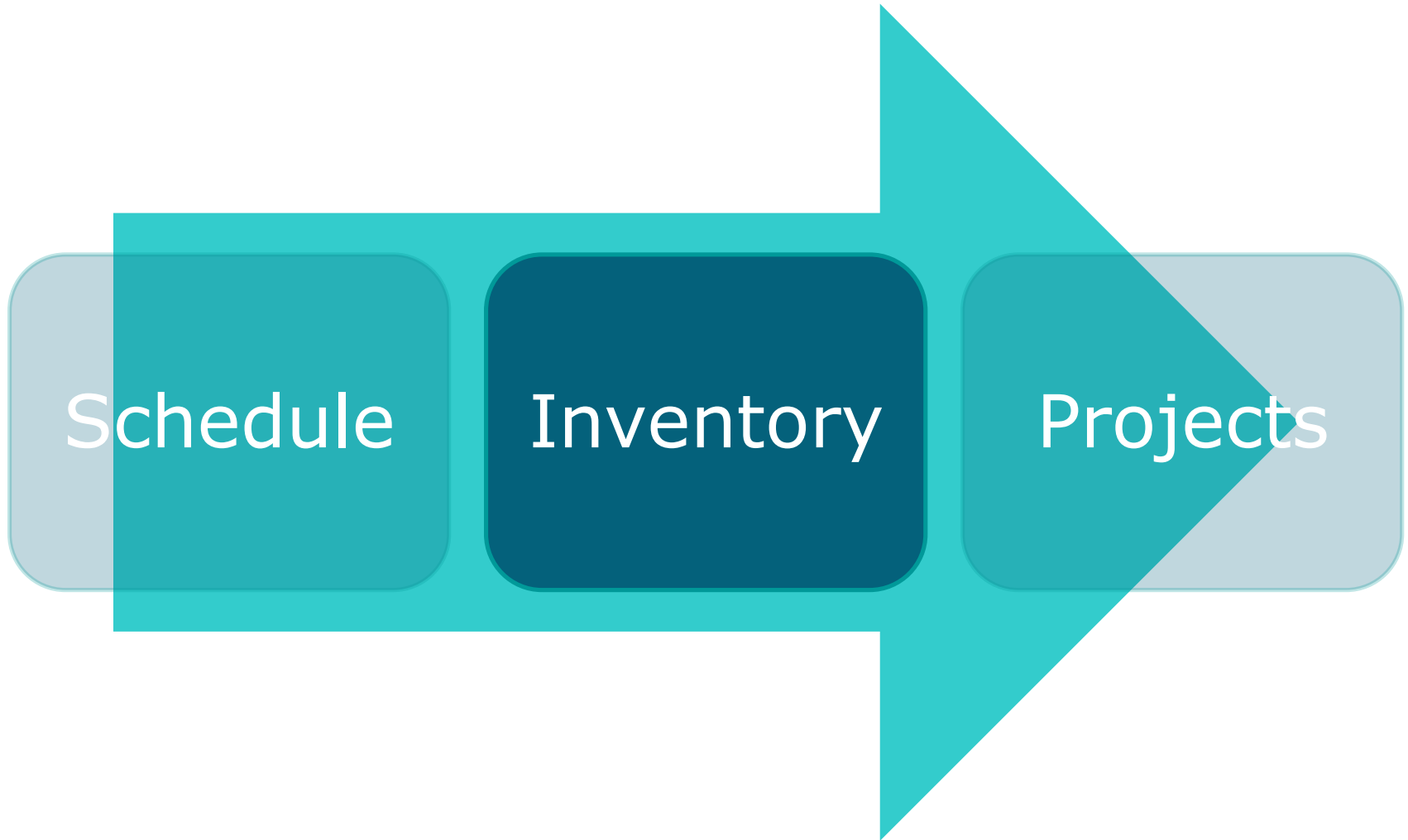




- Where ATI's currently have no linework.



- Proposal to import existing datasets i.e. incorporate open data layers into MapRoad Browser Application to expedite the creation of the network.





Asset Management Tools

- ~~How we propose to accommodate Active Travel Infrastructure in MapRoad?~~
- ~~What software solutions have been considered to enable Active Travel Infrastructure to be established?~~
- How will Inventory be captured?



Layer Tree

- Layers
 - Road Network Layers
 - Legacy Road (to be fixed)
 - National Primary
 - National Secondary
 - Regional
 - Local Primary
 - Local Secondary
 - Local Tertiary
 - TII Road Network
 - Road Junctions
 - StreetView
- Projects
- Latest Surveys
- Network Editing
- Bridge Layers
- Speed
- Maproad Layers
- Boundaries
- Surveys
- 3rd Party Datasets
- Base Layers
 - OpenStreetMap
 - Google Hybrid
 - Grey Background
 - OSI (discovery)
 - OSI (serial)
 - OSI (premium)

New Surface Survey

General History

Details

Surface Course*: High Friction Surfacing

Survey Date*:

Description:

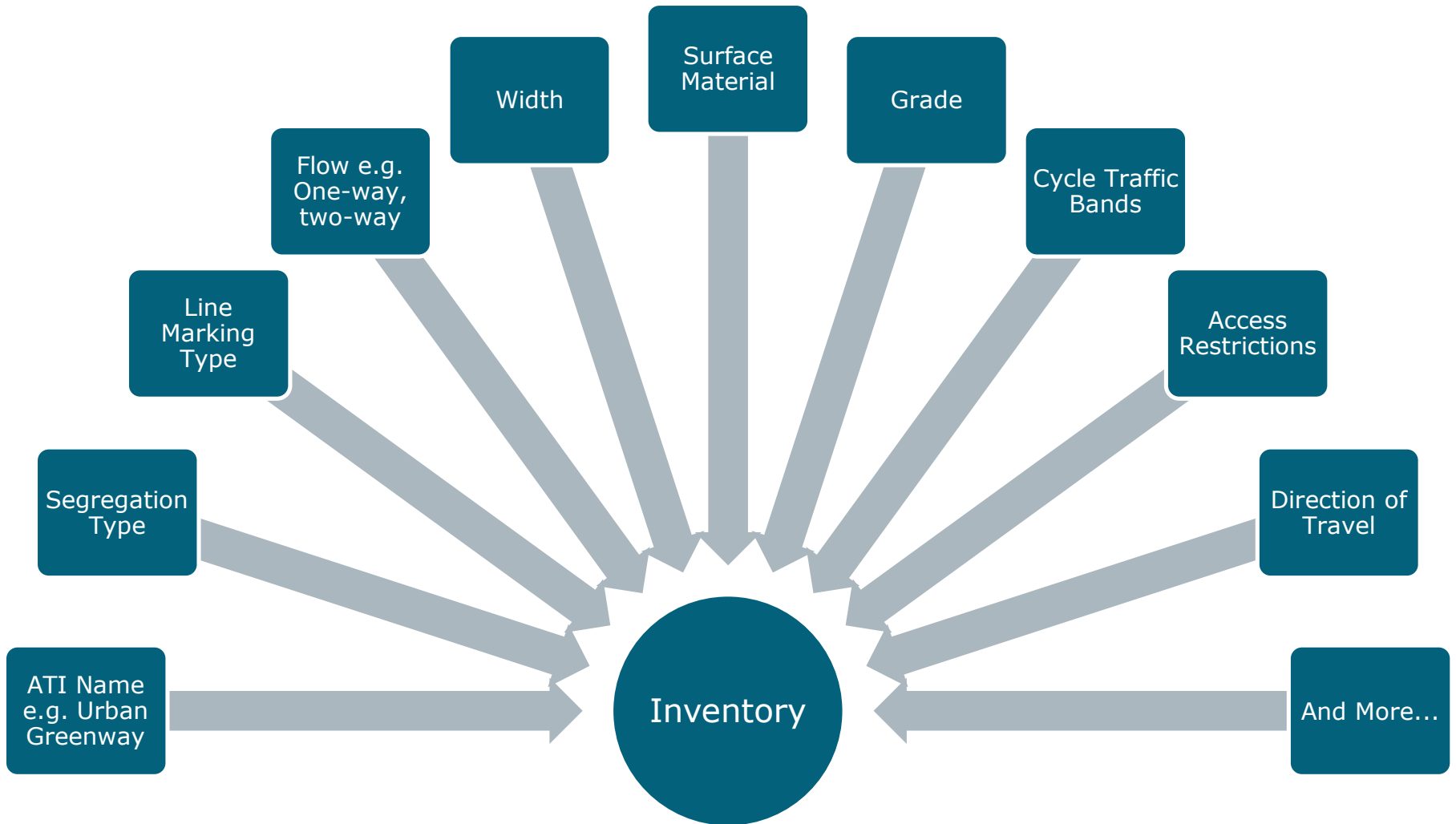
Road Class	Engineering Area	District/LEA	Route Number

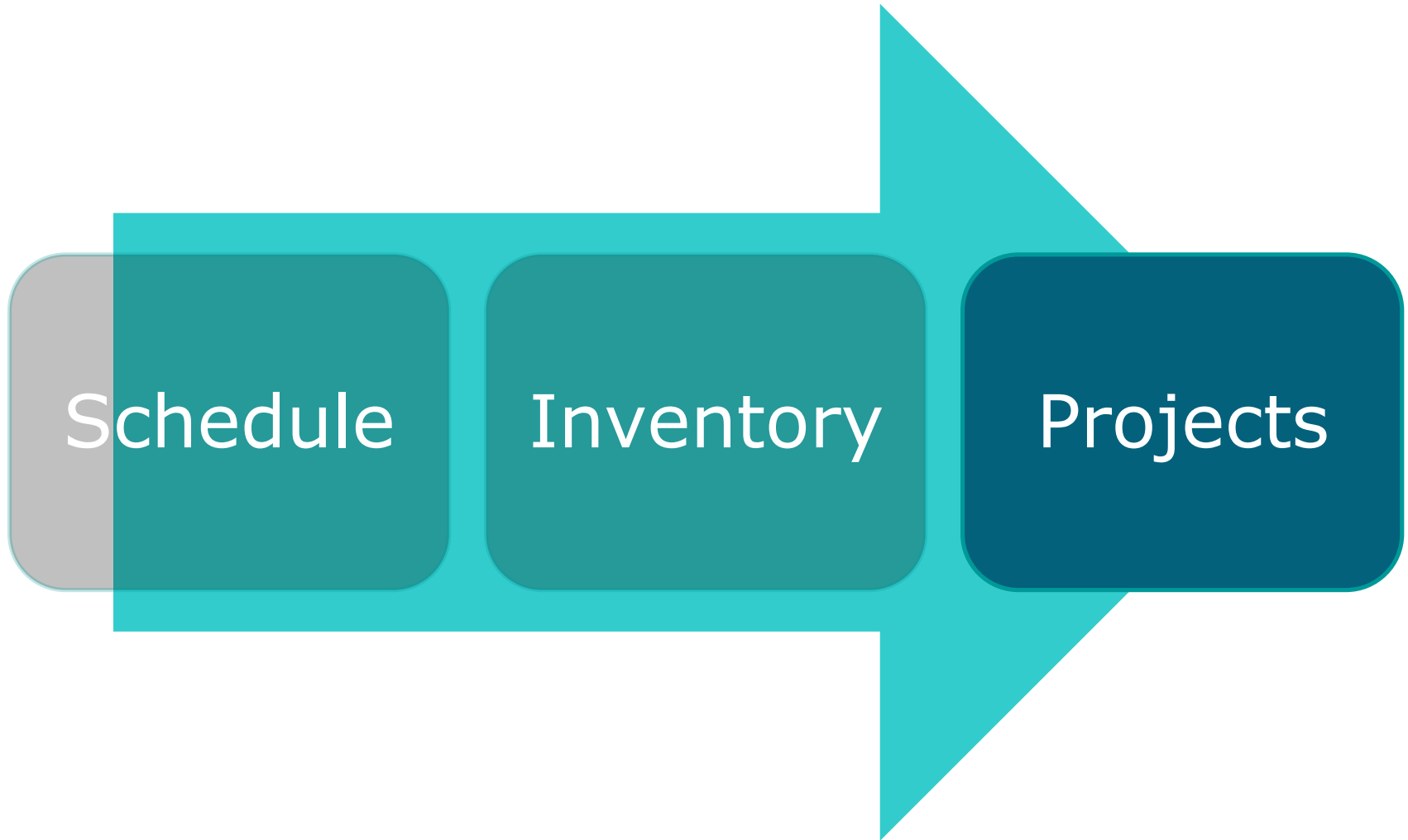
Delete Zoom Save Cancel

Google Street View Image Date: 2021-05

1:2,685 IRENET95 / Irish Transverse Mercator Easting: 725385.592 Northing: 739264.503 Logout

- Apply Inventory surveys through the MapRoad Browser Application.

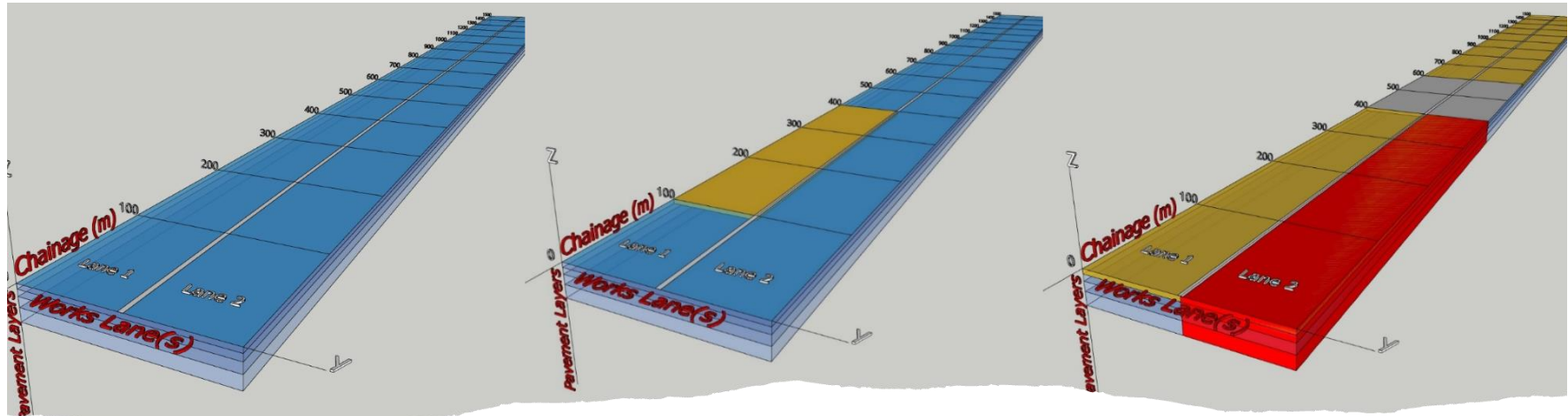






Asset Management Tools

- How will projects be recorded?

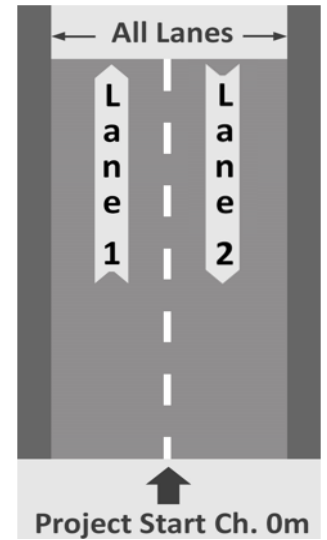


Projects now recorded across three Axis:

X - Chainage (m): Longitudinal distance in meters along a road pavement.

Y - Lane(s): Transverse distance in meters across a road pavement.

Z - Pavement Layers: Thickness in mm by road pavement layer.



Lane 1	Lane 2
Traffic Lane	Traffic Lane

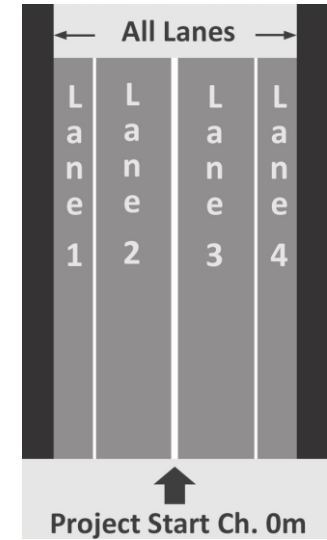
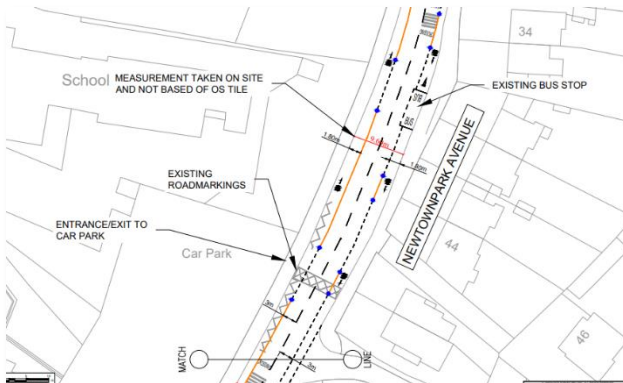
LCD Description

Direction: two-way

No. of Lanes: 2

Lane 1: Traffic Lane
Lane 2: Traffic Lane

Before



Lane 1	Lane 2	Lane 3	Lane 4
ATI	Traffic Lane	Traffic Lane	ATI

LCD Description

Direction: two-way

No. of Lanes: 4

Lane 1: Roadway
Cycle Track

Lane 2: Traffic Lane

Lane 3: Traffic Lane

Lane 4: Roadway
Cycle Track

After



ATI's by location



Expenditure

Layer Tree

- Layers
 - Road Network Layers
 - Road Schedule (Basic)
 - TII Road Network
 - Road Junctions
 - StreetView
 - Projects
 - Latest Surveys
 - Network Editing
 - Bridge Layers
 - Speed
 - Maproad Layers
 - Boundaries
 - Surveys
 - 3rd Party Datasets
 - Base Layers
 - OpenStreetMap
 - Google Hybrid
 - Grey Background
 - OSI (discovery)
 - OSI (aerial)
 - OSI (premium)

Map Tools: Search, Zoom, Pan, etc.

Data Editing: Projects, Programmes, Speed Limits, Surveys, Road Schedule, Bridges

Gazetteers: Search for a location, Segment Code, Townland

Regional and Local Road Project: CPI Case Study Newtownpark Avenue

General | Works | Expenditure | Benchmarks | Chronology | Files | Validation | Geometry

Mapped/Site Summary

Project Length: 700 m | Measured Pavement Width: Unrecorded | Road Schedule Width: 8.60 m

Works Summary

Project Works Length: 0 m | Project Average Works Width: 0.00 m | Project Works Area: 0 m2

Project Notes

Reconfiguration of Road markings. See works Grid
Installation of Composite Krebs and Bollards across the length of the projects

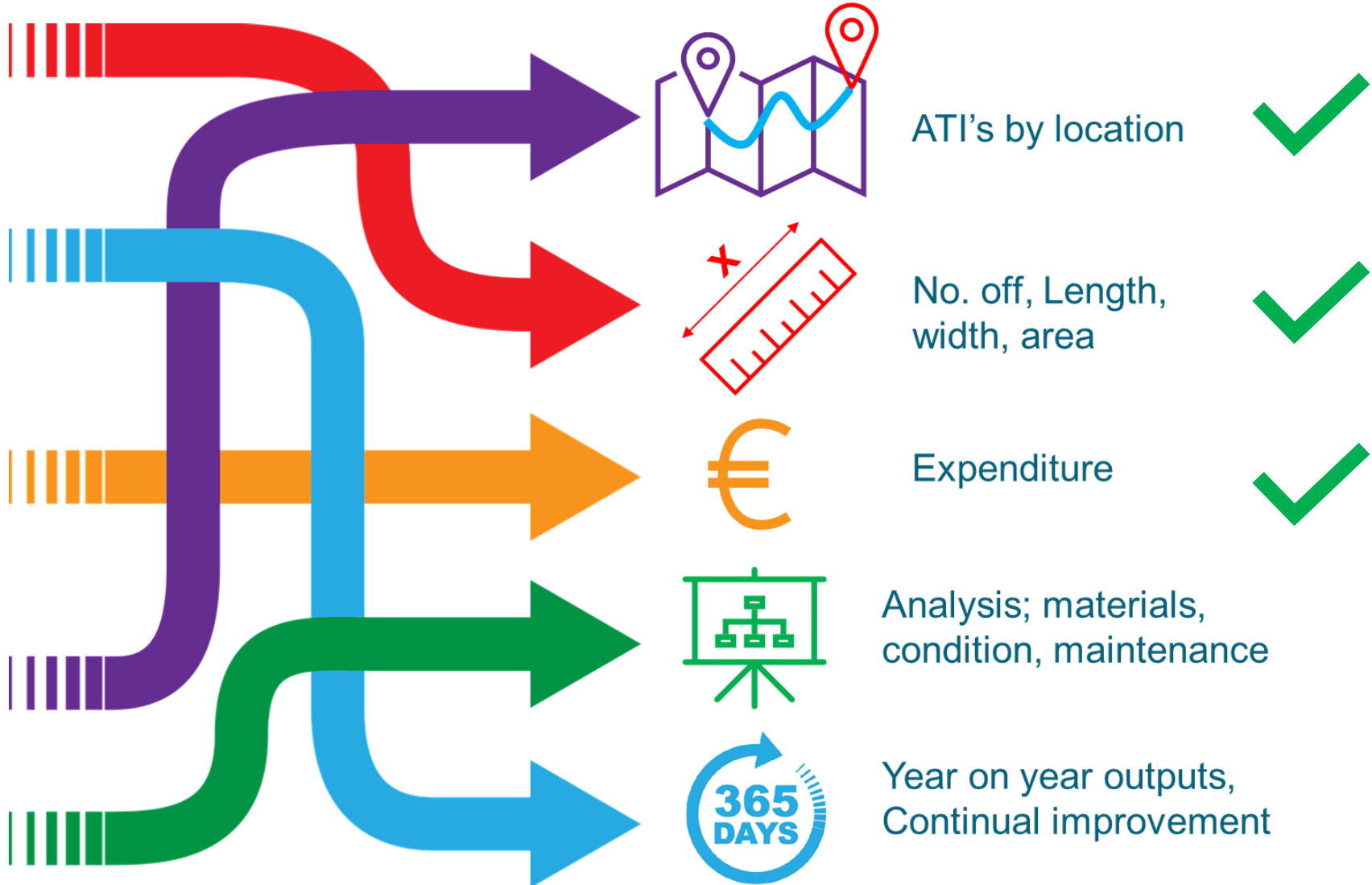
Works Grid

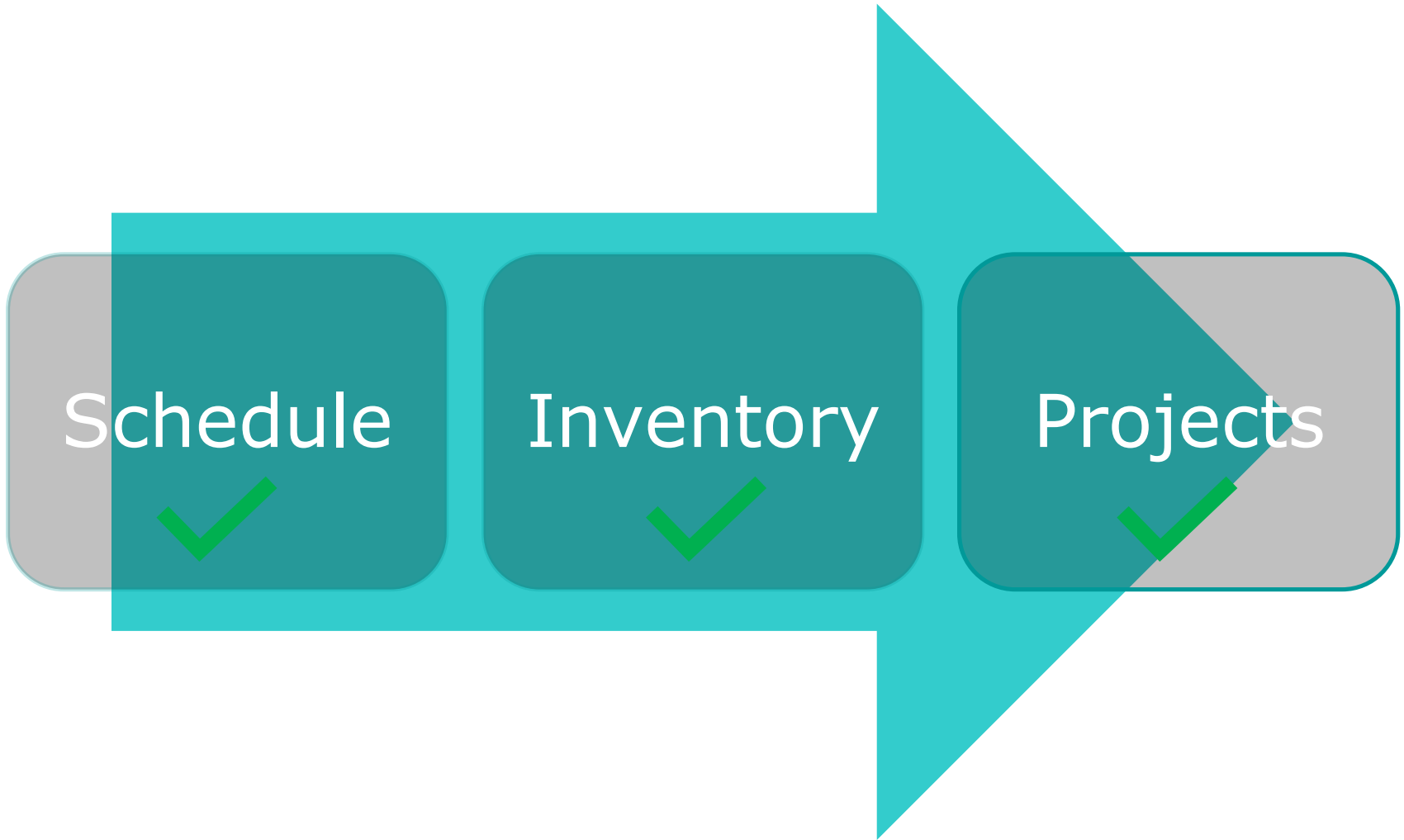
Section	Length (m)	Section Width (m)	No. of Lane(s)
0 m - 700 m	700	9.00	4

Layer	Material	Designation	Thickness	Chip Size	Works By	Contractor	Length (m)	Width (m)	Area (m2)	Volume (m3)
+ Lane 1/4 Width: 1.50 m Construction Method: At Grade Intervention: None										
Surface Course	Asphalt		0				700.00	1.5	1,050	0
Binder Course	Concrete		0				700.00	1.5	1,050	0
Base	Concrete		0				700.00	1.5	1,050	0
Geosynthetics	Cobbles		0				700.00	1.5	1,050	0
Sub base	Concrete		0				700.00	1.5	1,050	0
Capping	Hot Rolled Asphalt		0				700.00	1.5	1,050	0
+ Lane 2/4 Width: 3.00 m Construction Method: At Grade Intervention: None										
Paving	Slurry		0							
Surfacing	Surfacing		0							
+ Lane 3/4 Width: 3.00 m Construction Method: At Grade Intervention: None										
Stone Mastic Asphalt	Asphalt									
Surface	Surface									
Dressing	Dressing									



No. off, Length, width, area







Asset Management Tools

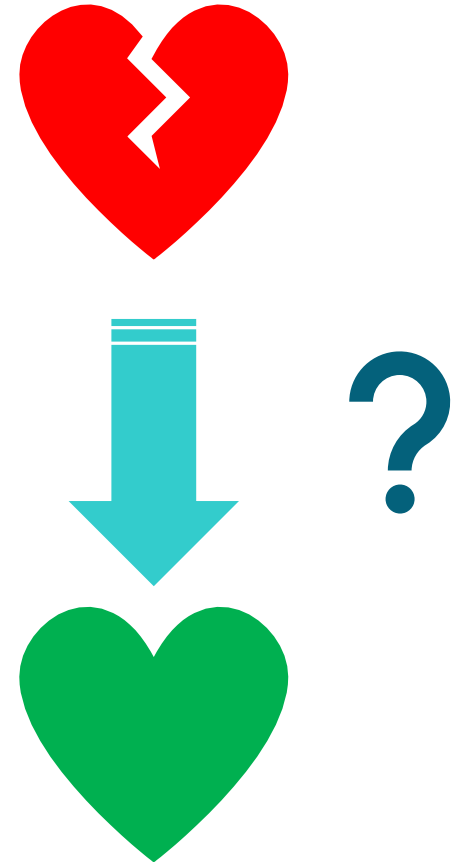
- How will ATI's Condition Rating be captured and presented?



Overall PSCI Rating	Primary Rating Indicators*	Secondary Rating Indicators*
10	No Visible Defects.	Road surface in perfect condition
9	Minor Surface Defects ¹ . Ravelling or Bleeding <10%.	Road surface in very good condition. Like new.
8	Moderate Surface Defects ¹ . Ravelling or Bleeding 10% to 30%.	Little or No Other defects.
7	Extensive Surface Defects ¹ . Ravelling or Bleeding >30%.	Little or No Other defects.
6	Moderate Other Pavement Defects ^{2,3,4} . Other Cracking ² <20%. Sealed Cracks in Good condition. Some narrow Open Crack ² (≤12mm). Patching in Good condition ⁴ . Surface Distortion ³ requiring some reduction in speed.	Surface defects ¹ may be present. No structural distress ⁵ .
5	Moderate Other Pavement Defects ^{2,3,4} . Other Cracking ² >20%. Sealed Cracks in Fair condition. Some narrow Open Crack ² (≤12mm). Patching in Fair condition ⁴ . Surface Distortion ³ requiring reduction in speed.	Surface defects ¹ may be present. Very localised structural distress⁵ (<5m ² or a few isolated potholes) May be present.
4	Structural Distress ⁵ Present. Rutting, Alligator Cracking or Poor Patching for 5% to 25%. Wide Open Cracks ² (>12mm) with moderate Spalling. Sealed Cracks in Poor condition. Frequent Potholes. Short lengths of Edge Breakup.	Other defects may be present.
3	Significant Areas of Structural Distress ⁵ . Rutting, Alligator Cracking or Poor Patching for 25% to 50%. Many wide Cracks ² (>12mm) with severe Spalling. More frequent Potholes. Continuous lengths with Edge Breakup.	Other defects may be present.
2	Large Areas of Structural Distress ⁵ . Rutting, Alligator Cracking or Very Poor Patching for >50%. Severe Rutting (>50mm). Extensive Very Poor Patching. Many Potholes.	Pavement badly deteriorated. Very difficult to drive on.
1	Extensive Structural Distress ⁵ . Severe Deterioration of surface. Pavement Failure. Many large and deep Potholes. Extensive Failed Patching.	Severe Deterioration. Virtually undriveable.



Condition
Rating for
Pavements



- Once built, ATI Assets must be maintained.
- Asset condition informs maintenance strategies.
- Condition Rating of ATI Assets is the next step!



Thank You!

