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Department of Transport

Cumann Lucht Bainistíochta Contae agus Cathrach
County and City Management Association

# LOCAL AUTHORITY ROADS CONFERENCE and EXHIBITION – 2022

## Capturing Active Travel Pedestrian and Cycling Infrastructure on MapRoad

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Road Management Office

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# Active Travel Investment ?

NTA
Údarás Náisiúnta Iompair
National Transport Authority

- 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

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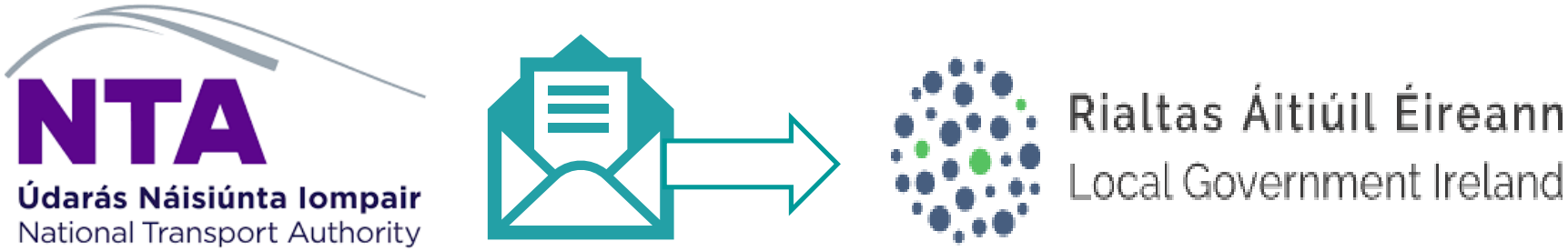
# Why Asset Management ?

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."*

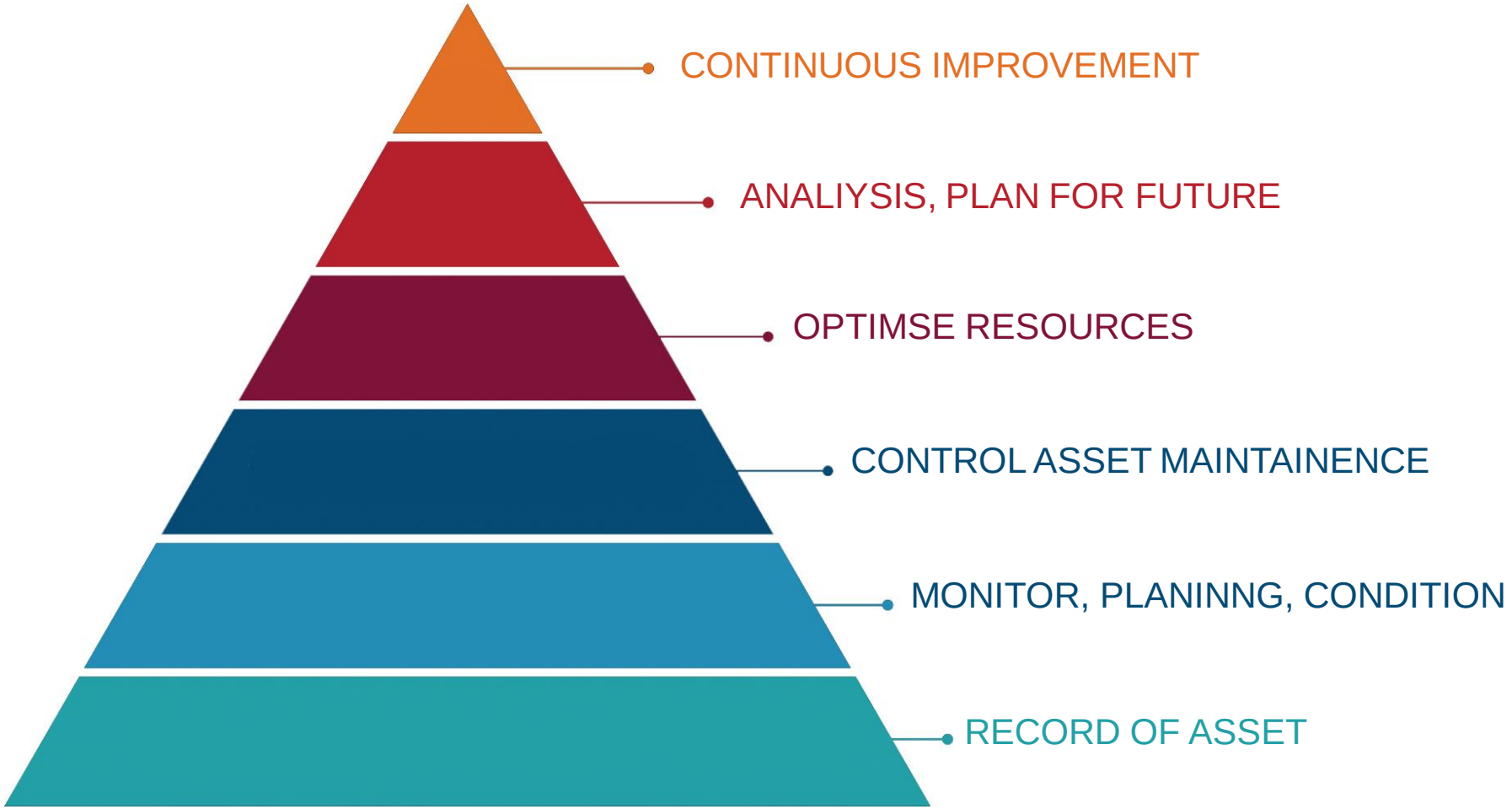
# Why Asset Management ?




***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 ?



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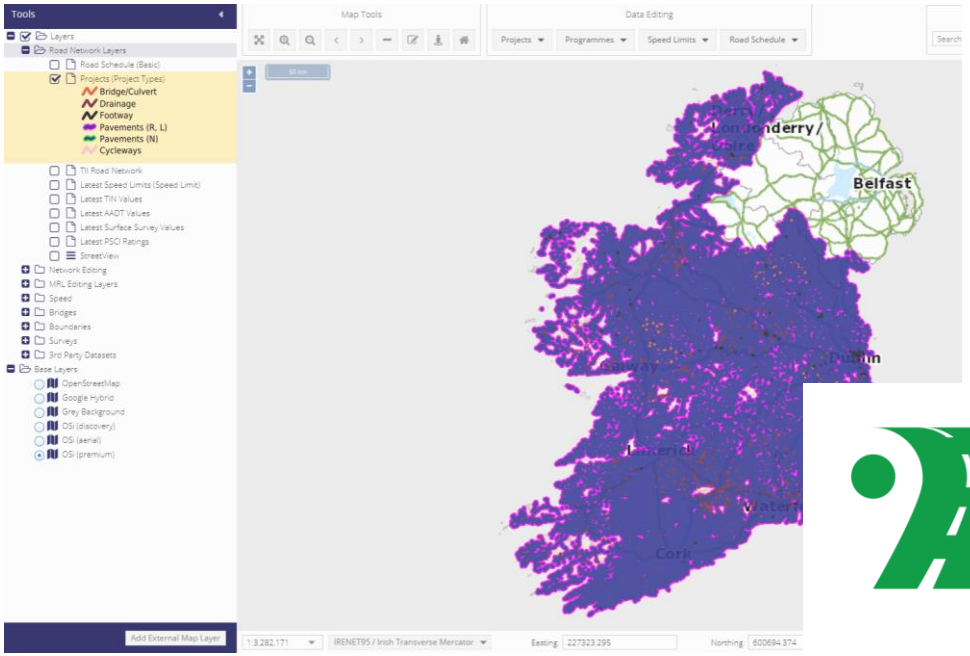
# Why MapRoad Pavement Management System (PMS) ?

- 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

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# 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.

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# 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.

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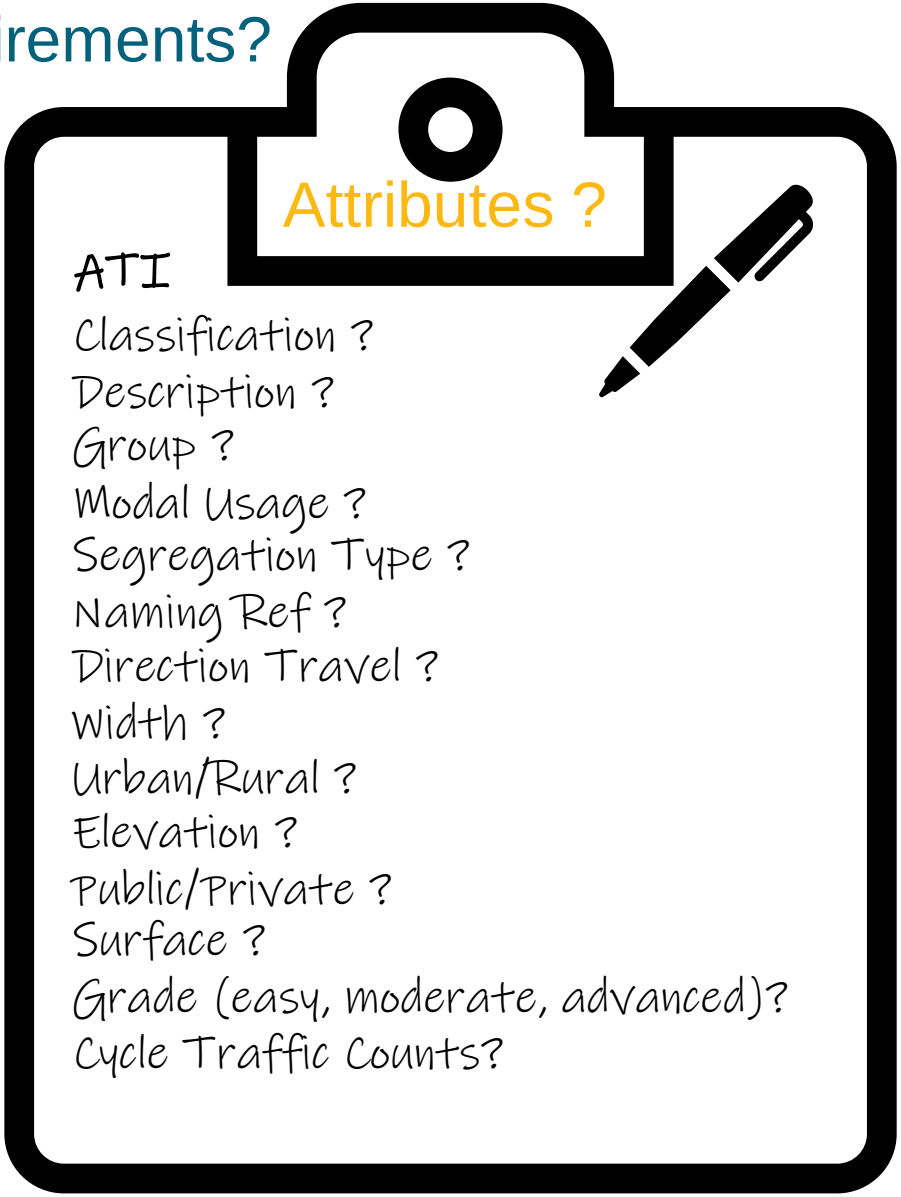
# TWG Discussion Papers.

# ATI Inventory Capture Requirements?

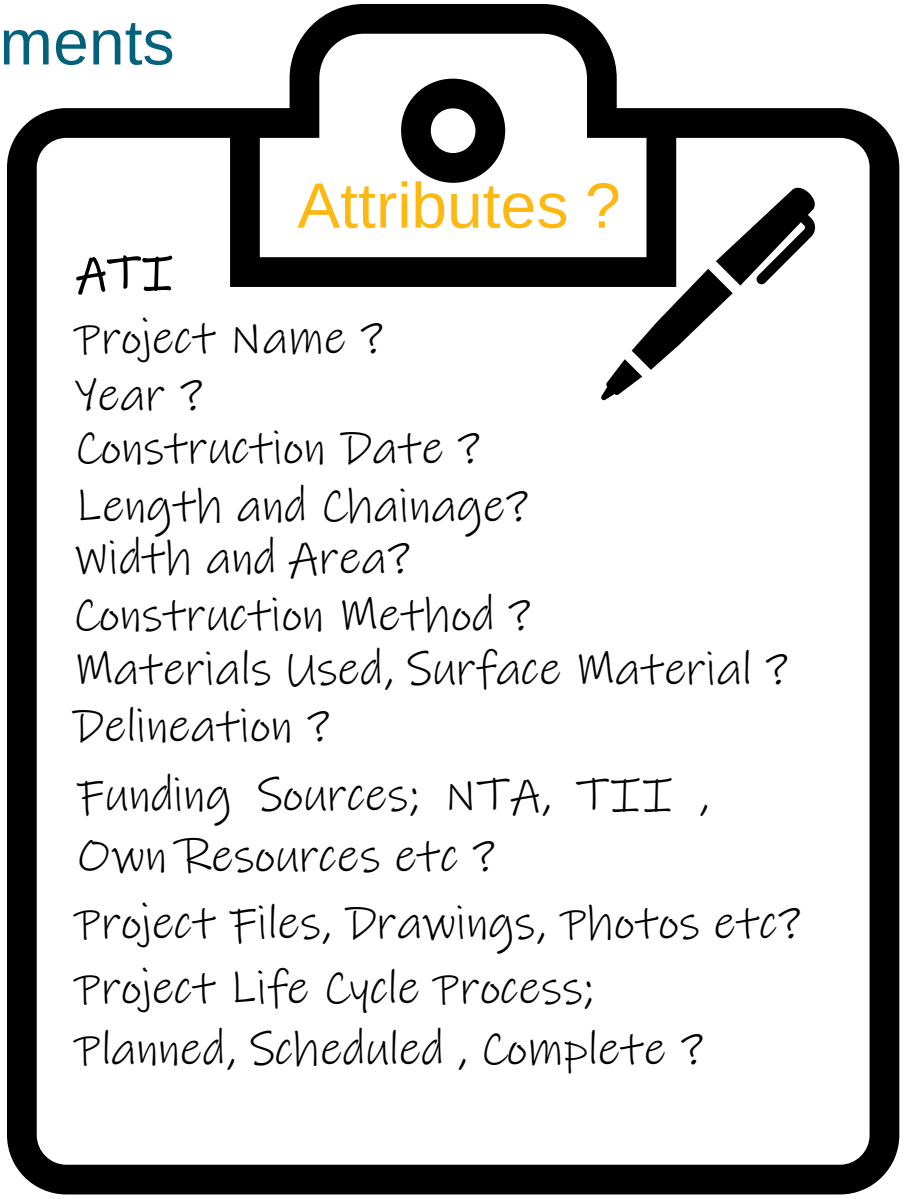
Where ?



# ATI Project Capture Requirements

## Expenditure ?

## Where ?



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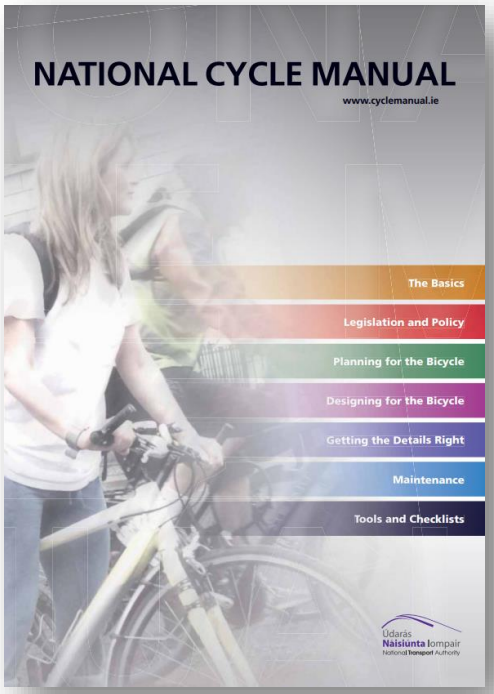
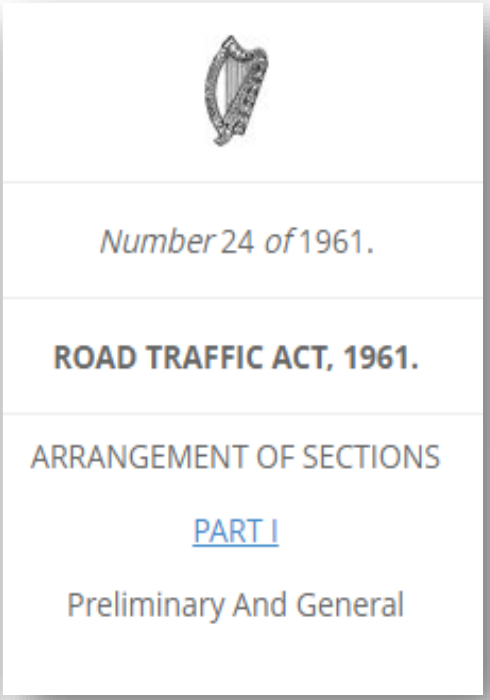
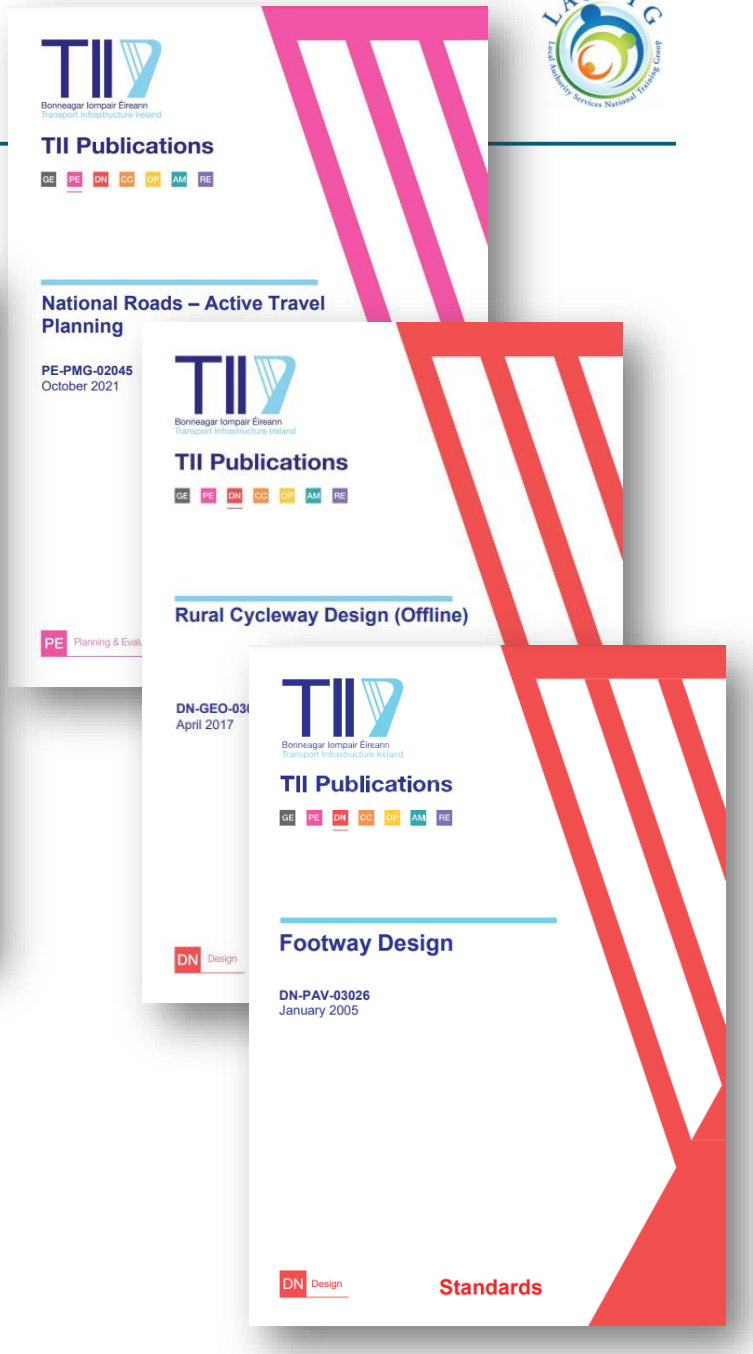
# Supporting Documents?

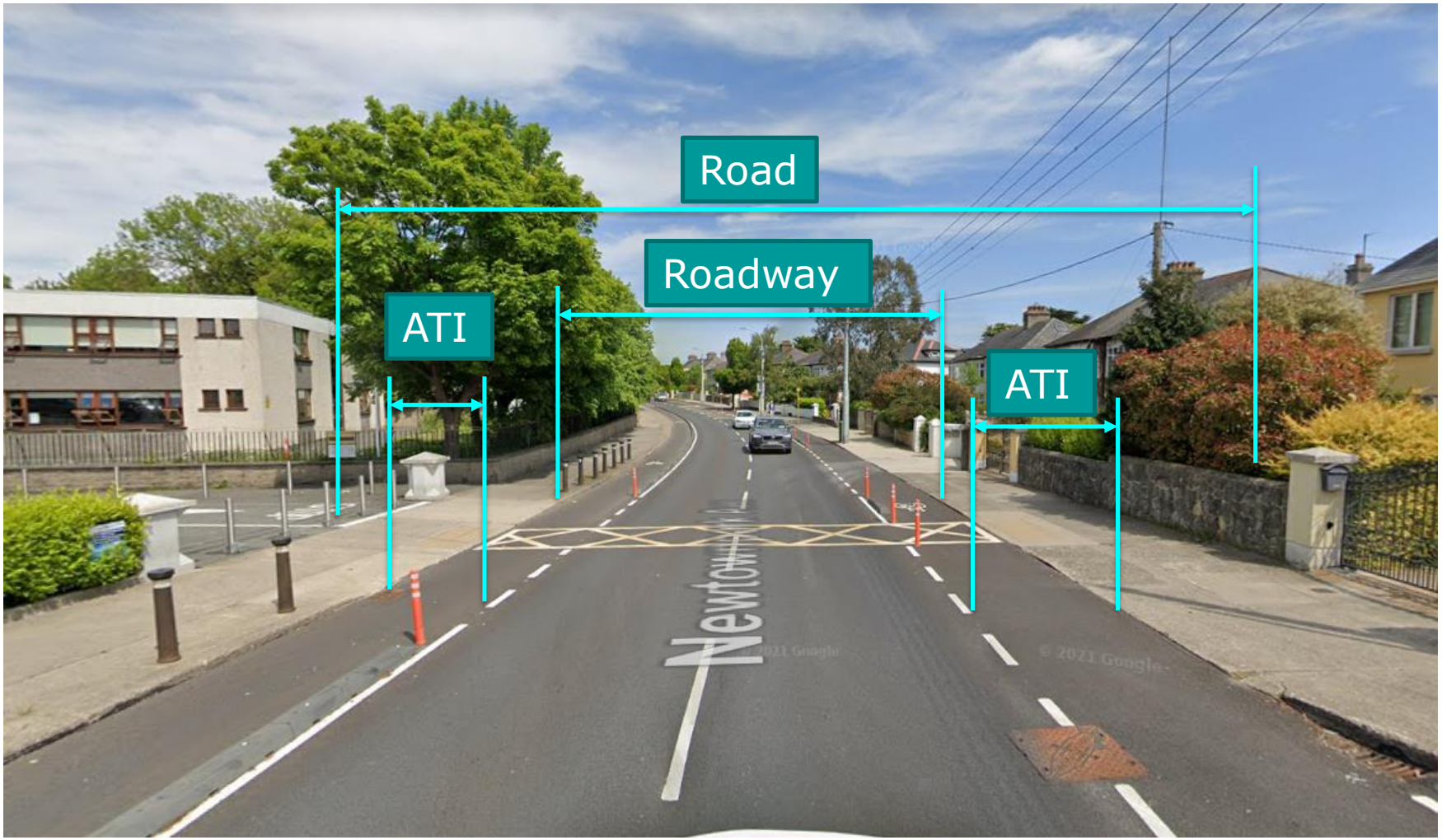



- Terms and Guidance
- Legal
- Design Standards, Materials

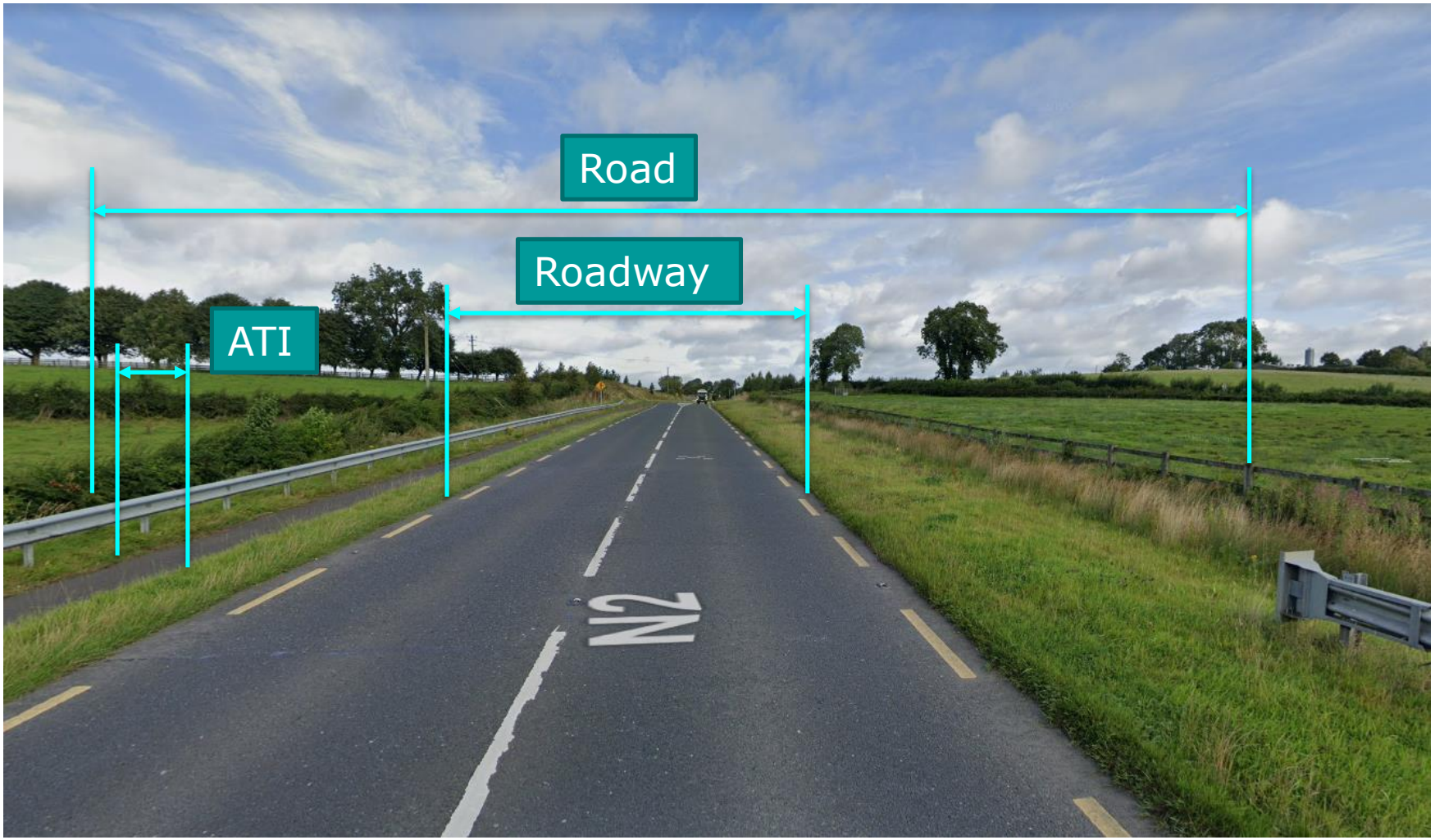
# ATI Group A



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



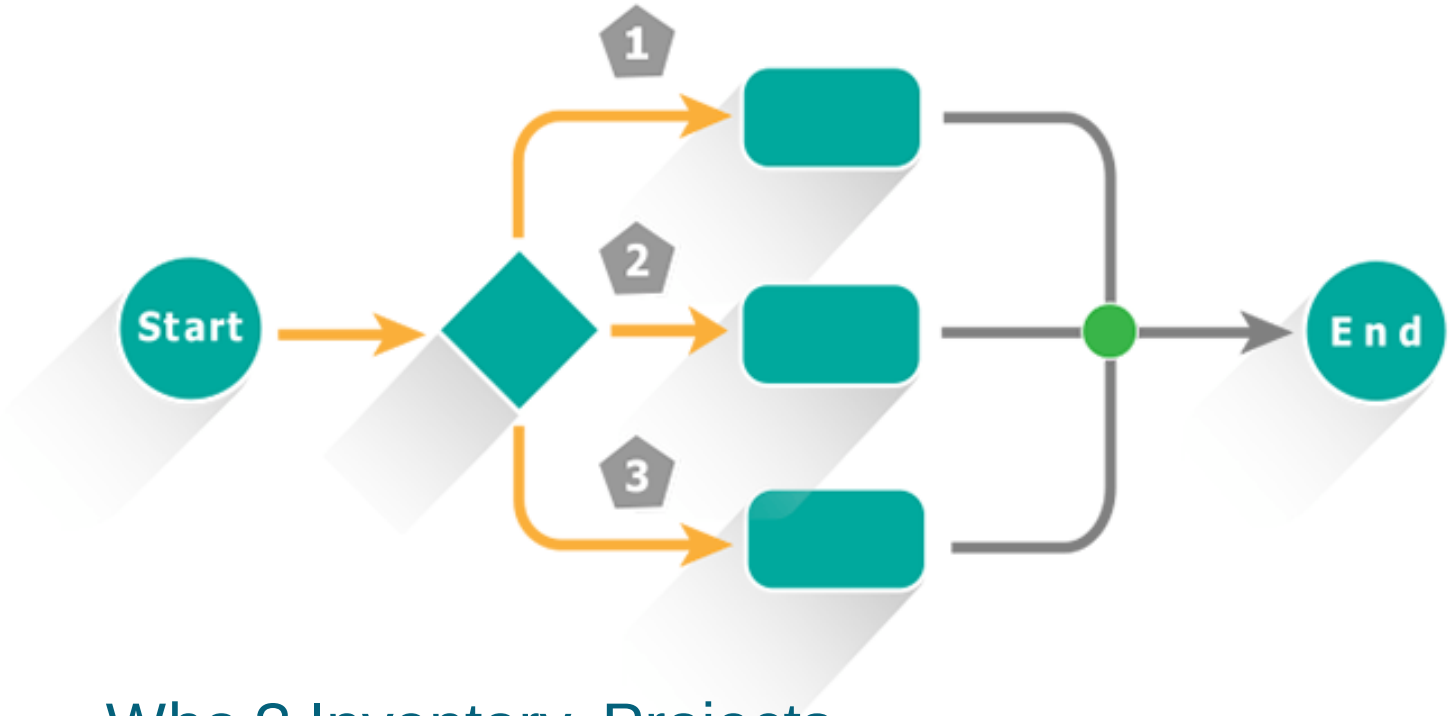
Shared Active Travel Facility

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


ATIs that occupy space free of motorised vehicular traffic.

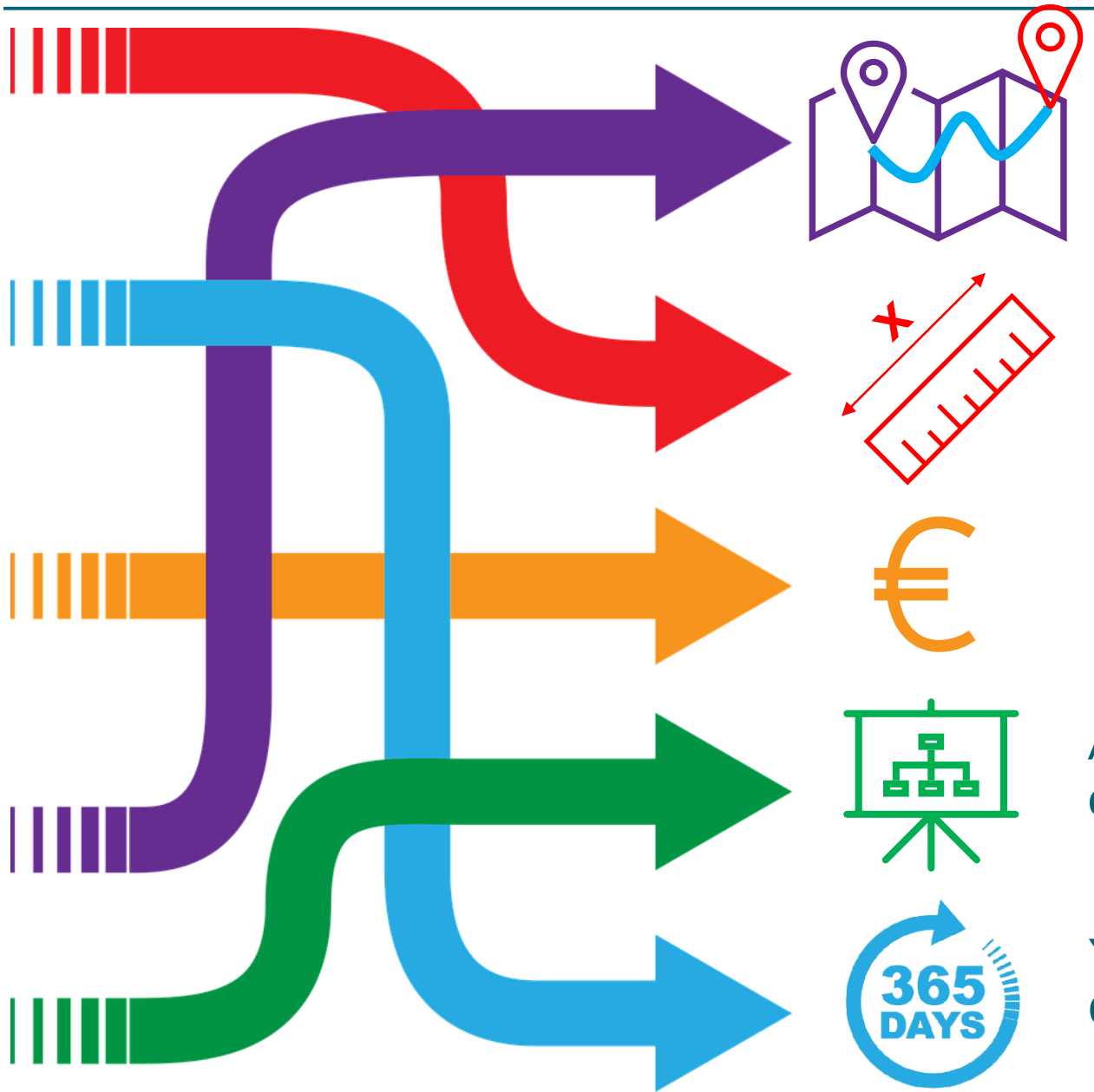
# Required System Capture Process?




- 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. off, Length, width, area

Expenditure

Analysis; materials, condition, maintenance

Year on year outputs, Continual improvement

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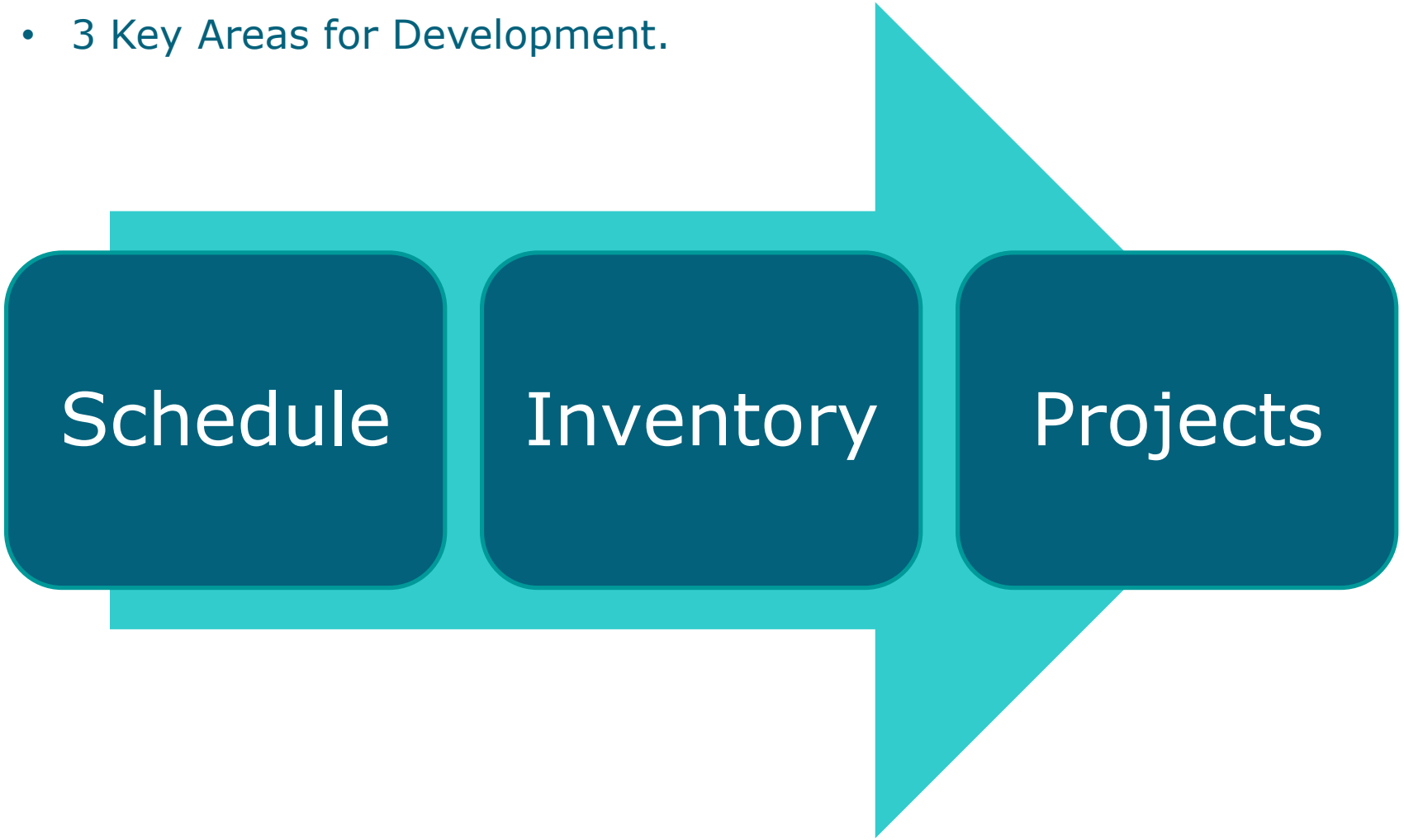
# Delivered. Nov 2021

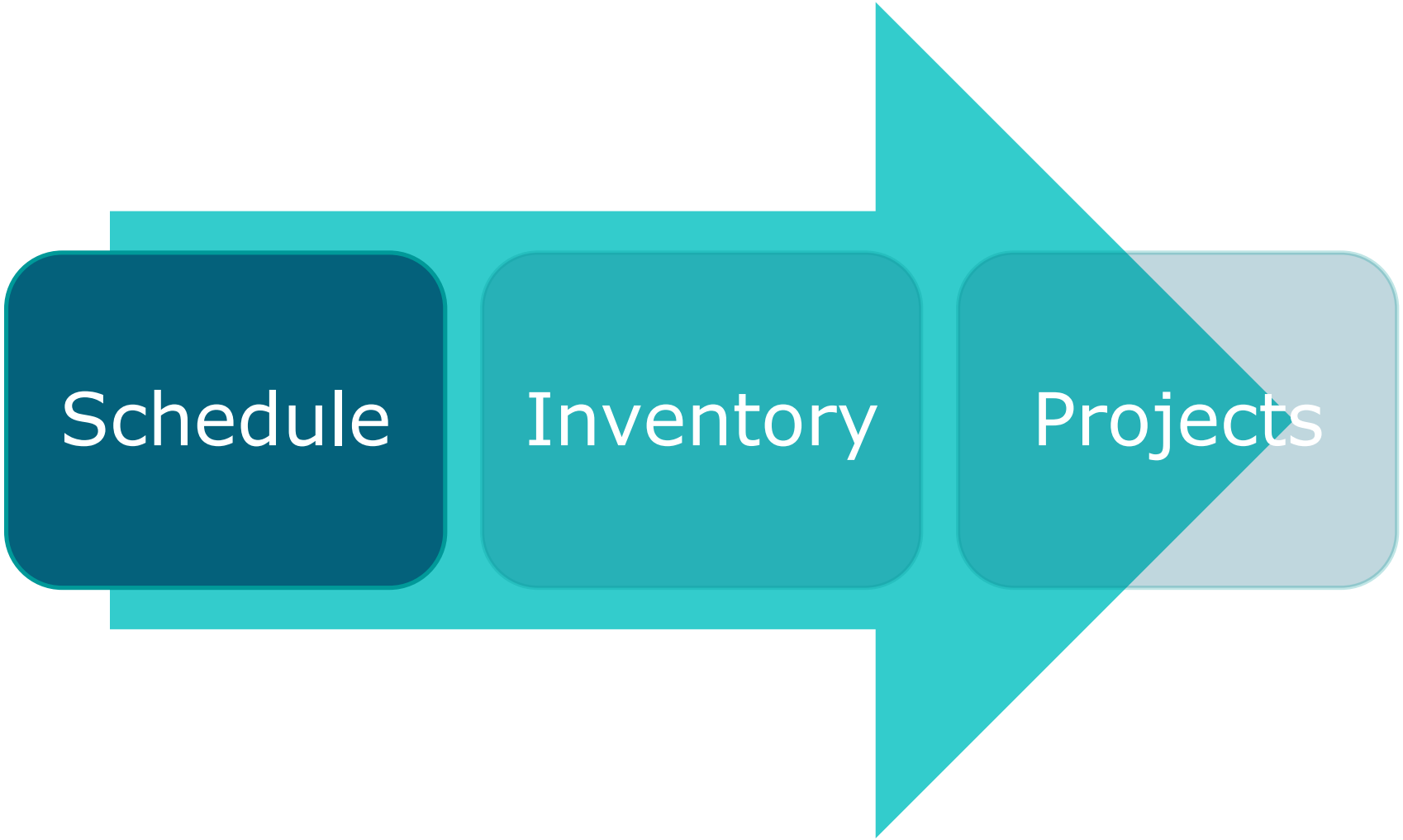
# Software Development Scoping Documents.

- 3 Key Areas for Development.

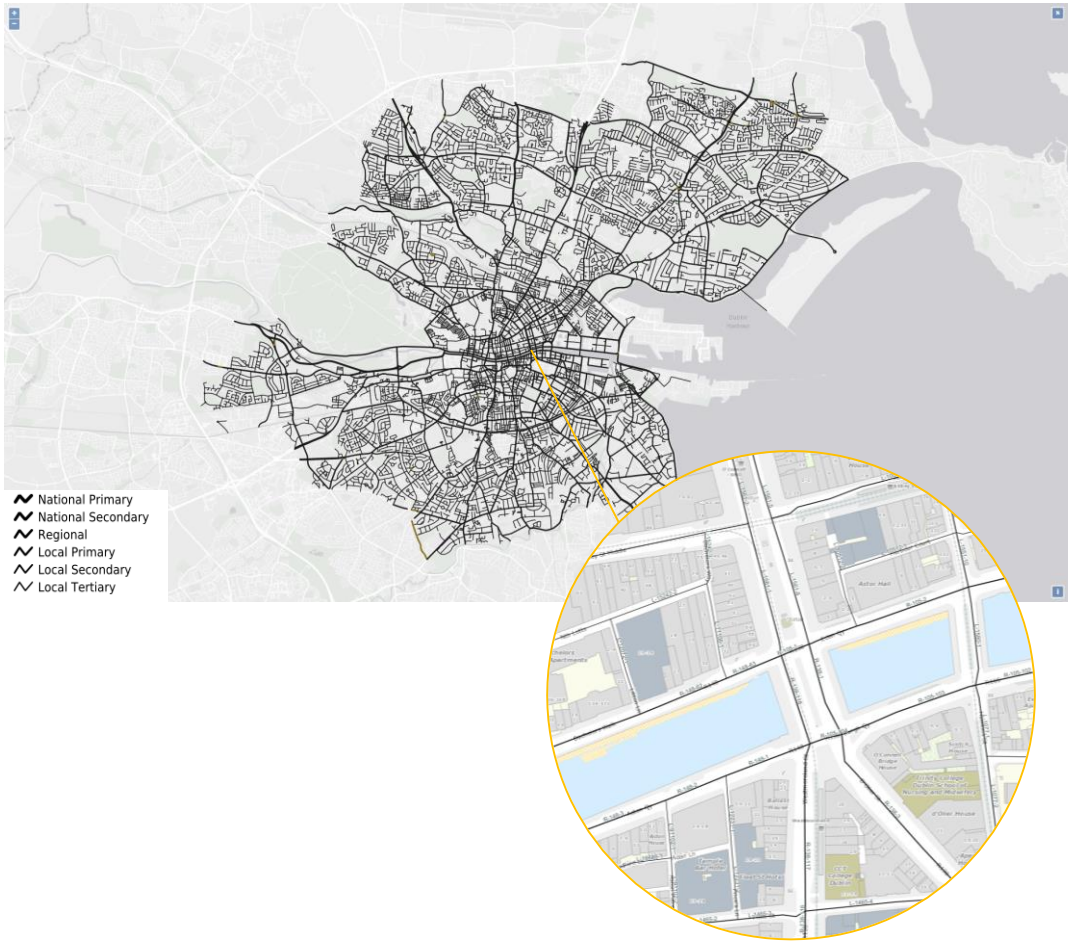


Asset Management Tools

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

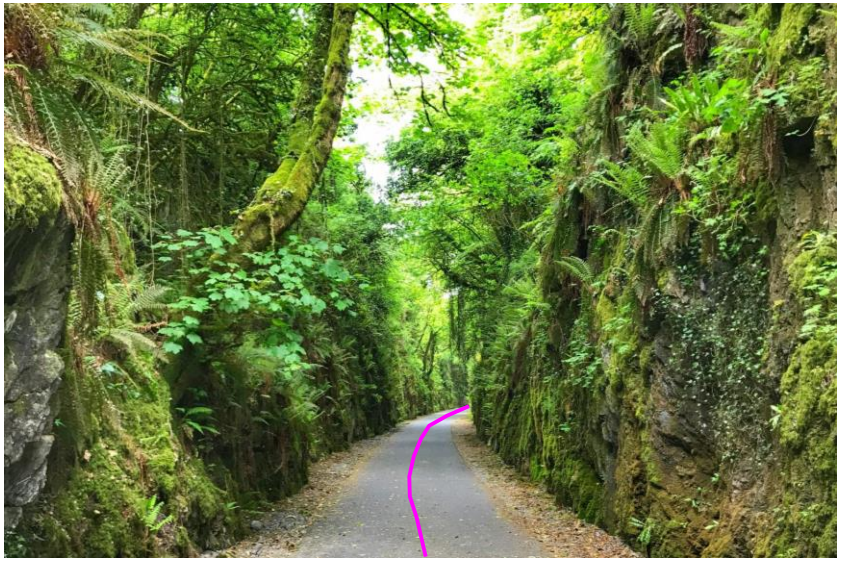

Schedule
Inventory
Projects

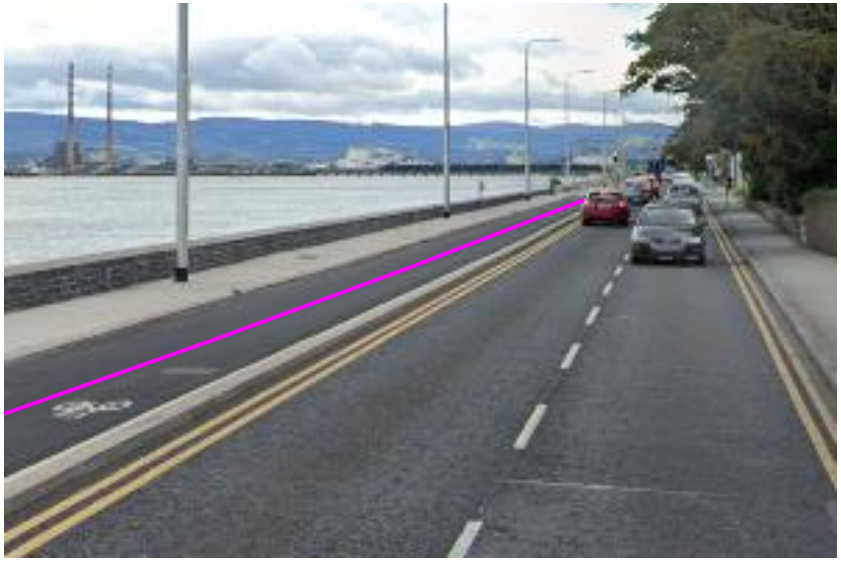
- MapRoad currently uses the OSI Prime 2 linework as a baseline network for public roads.
- The linework in this case is the centreline of the **Roadway.**
- Inventory data is captured against the spatial linework.
- The following slides will demonstrate how we propose to create the linework for ATI.

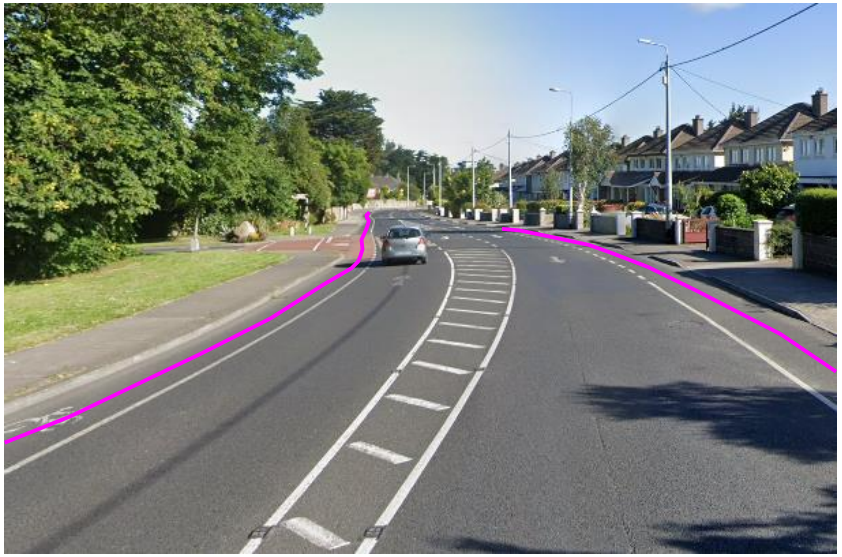


- ATI’s take many forms.

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

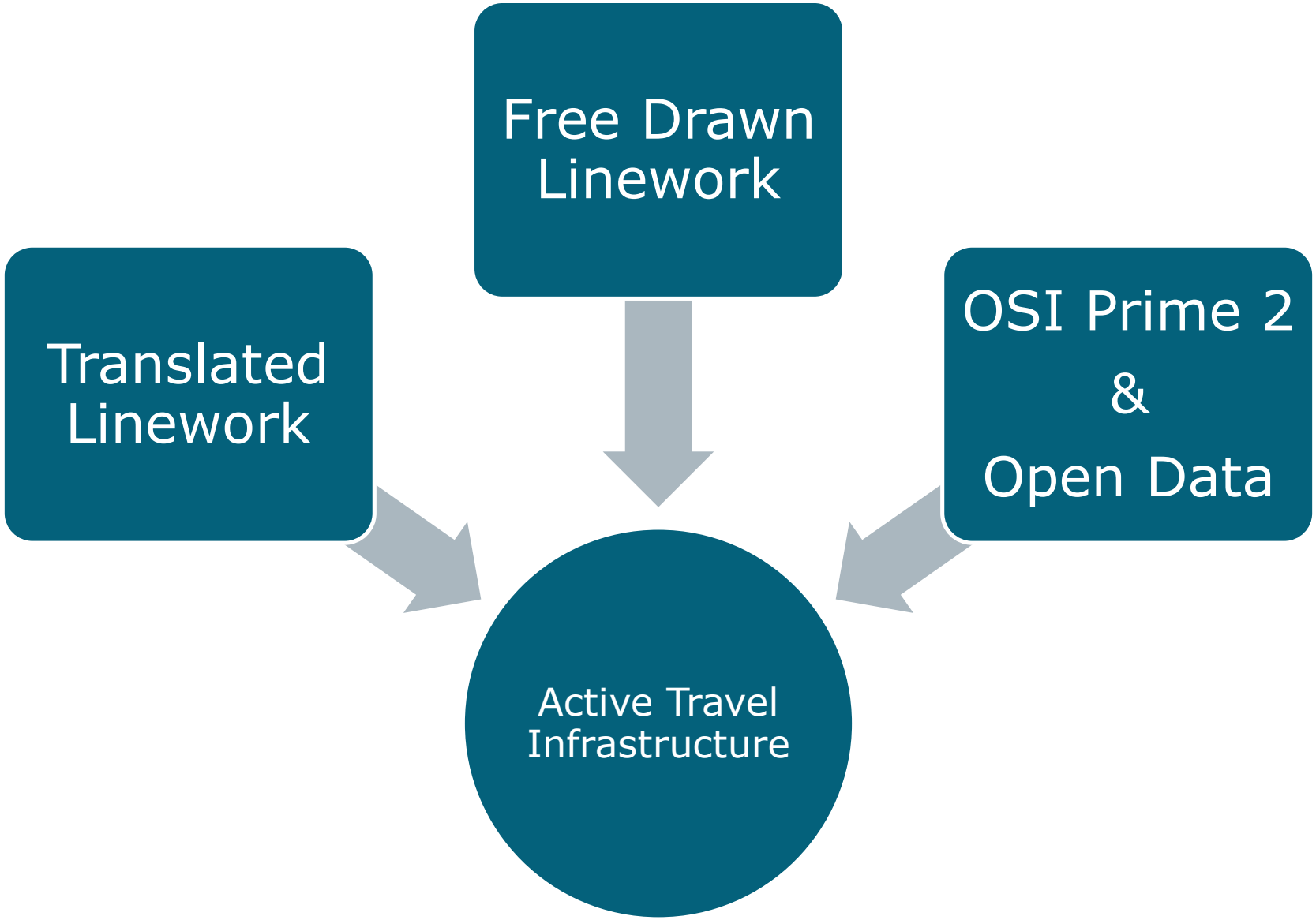


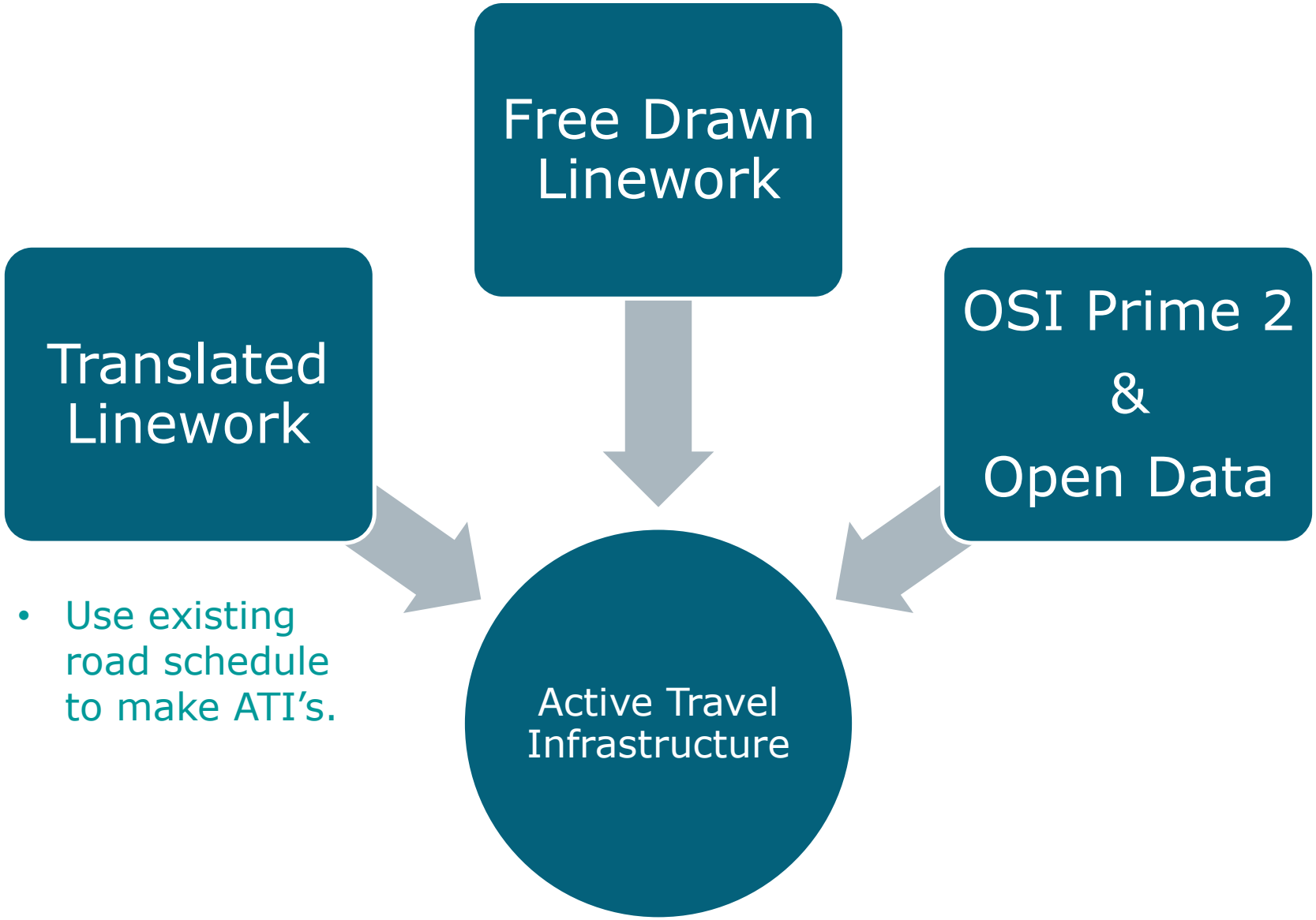




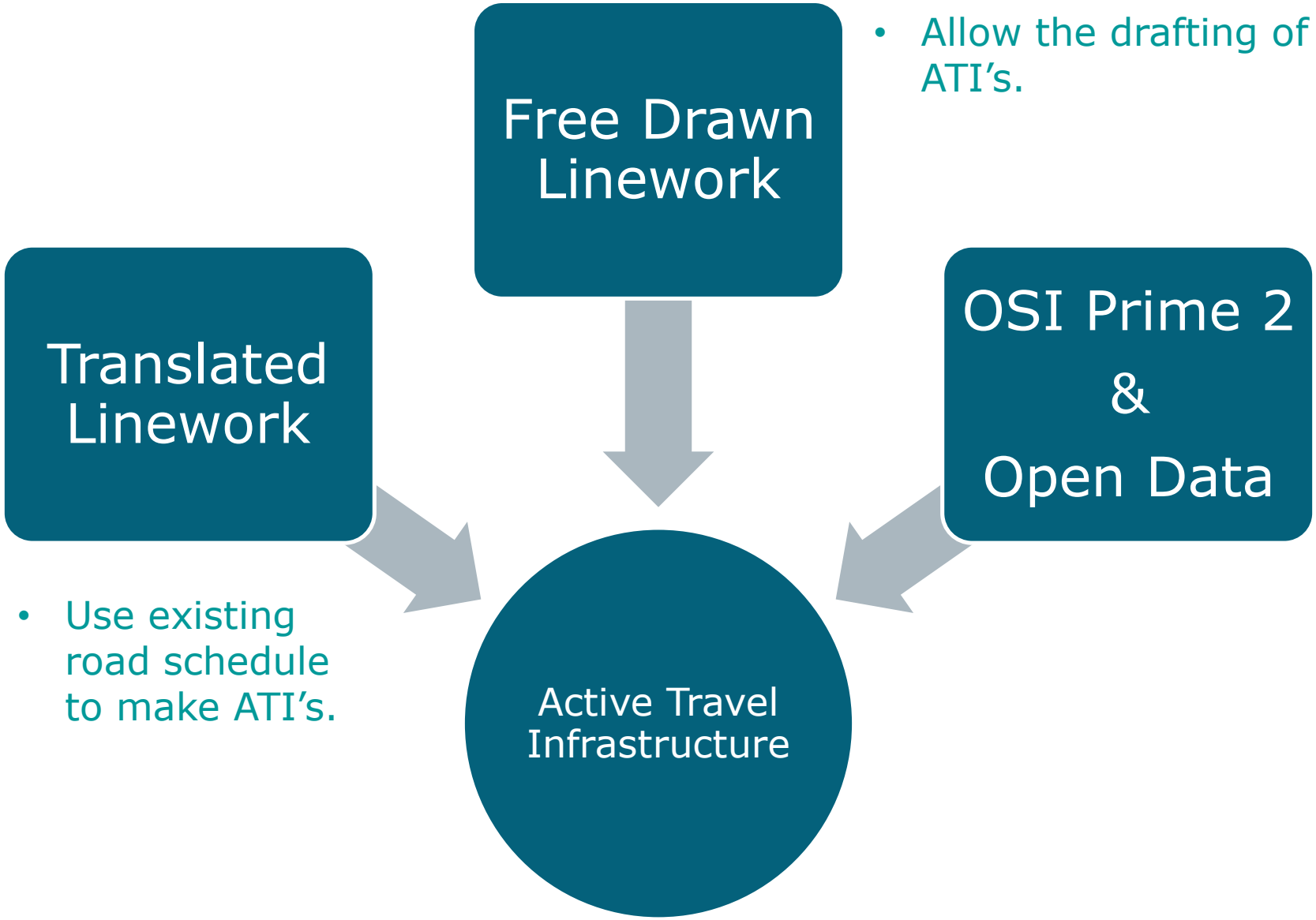
# Asset Management Tools

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

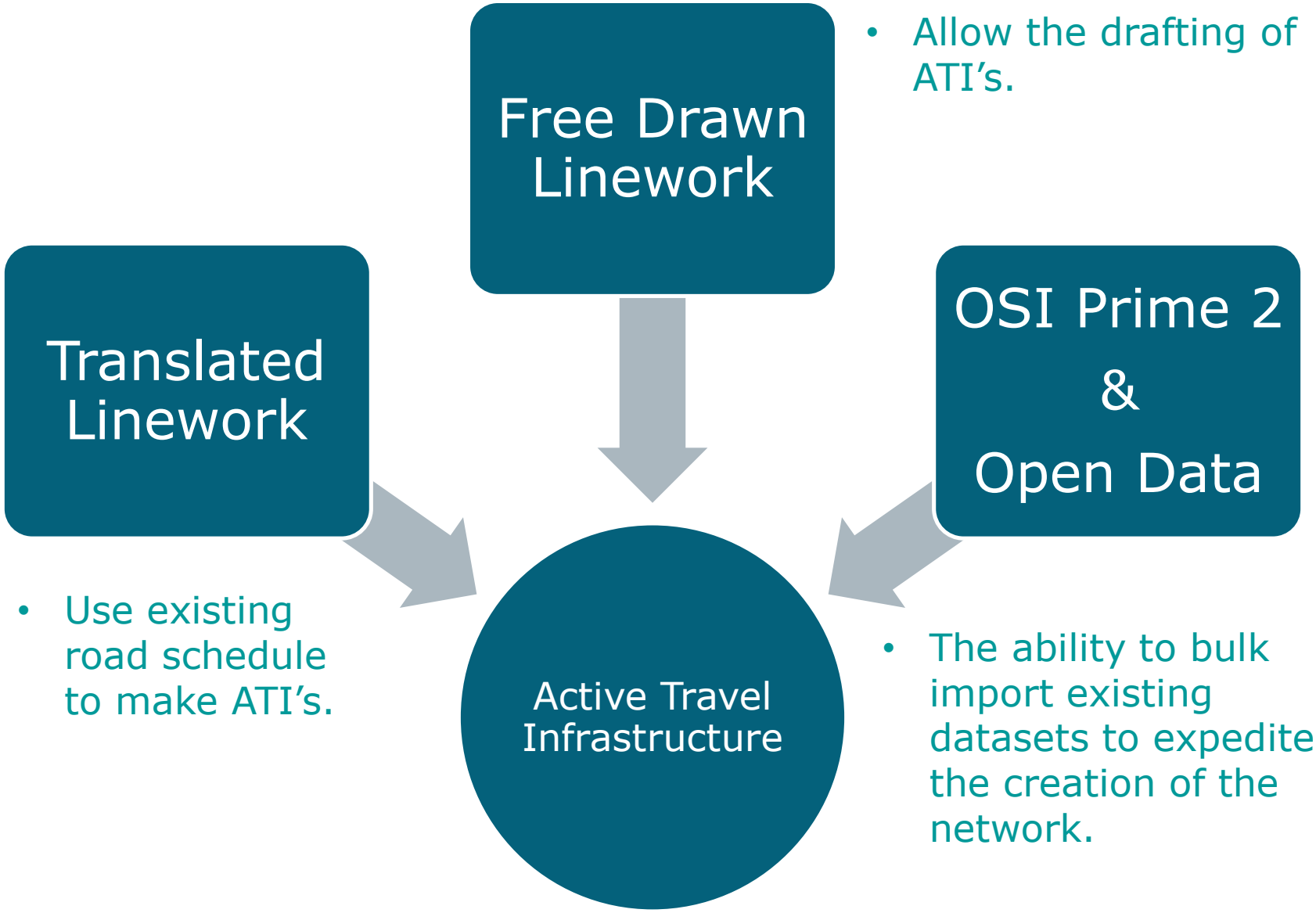

Free Drawn Linework
Translated Linework
OSI Prime 2 & Open Data
Active Travel Infrastructure



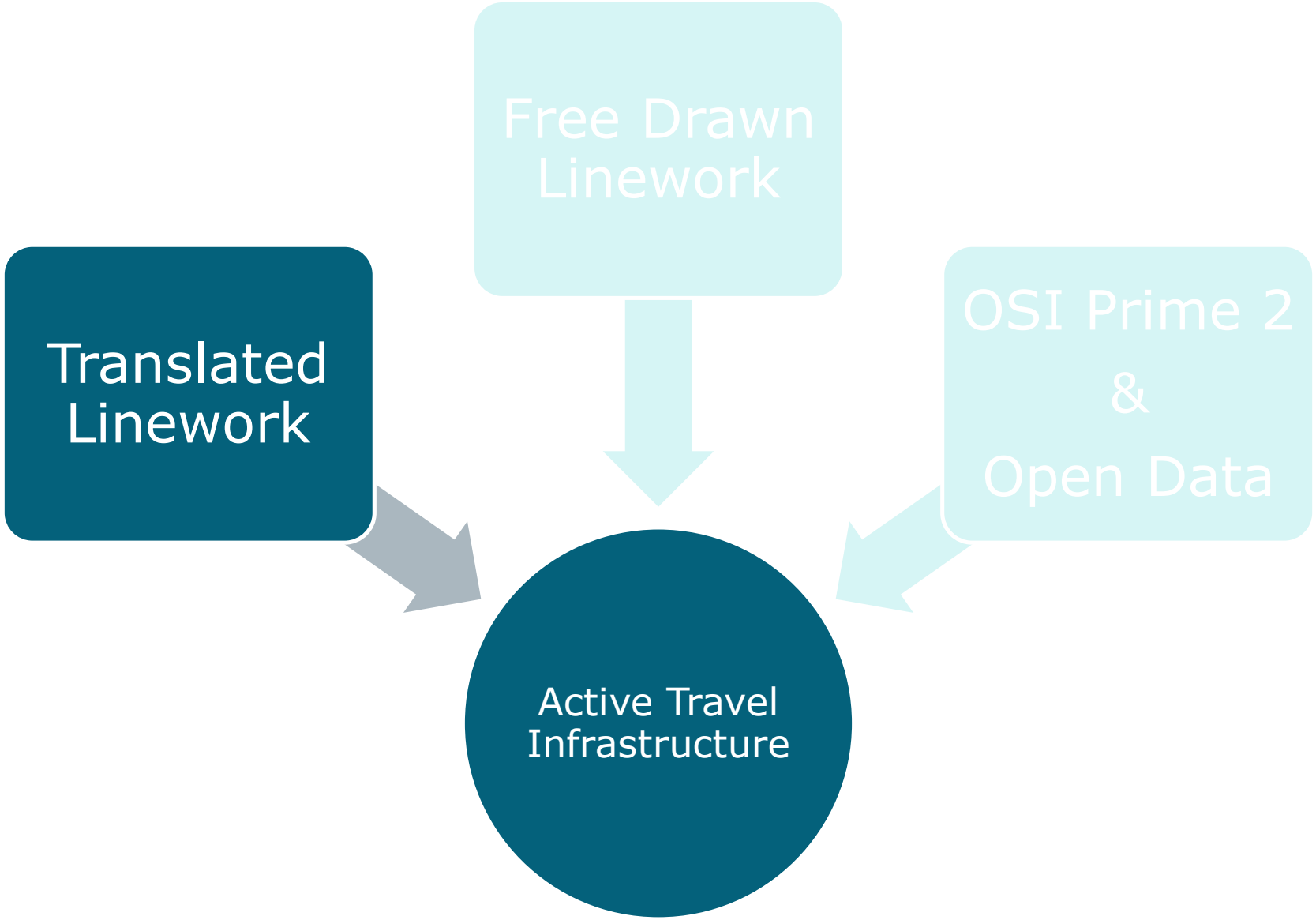

- Use existing road schedule to make ATI's.




- Allow the drafting of ATI's.
- Use existing road schedule to make ATI's.




- Allow the drafting of ATI's.
- Use existing road schedule to make ATI's.
- The ability to bulk import existing datasets to expedite the creation of the network.


Free Drawn Linework
Translated Linework
OSI Prime 2 & Open Data
Active Travel Infrastructure


- Roadway inclusive of At-Grade ATI's.


- Section of Roadway predominately for Vehicular Traffic.

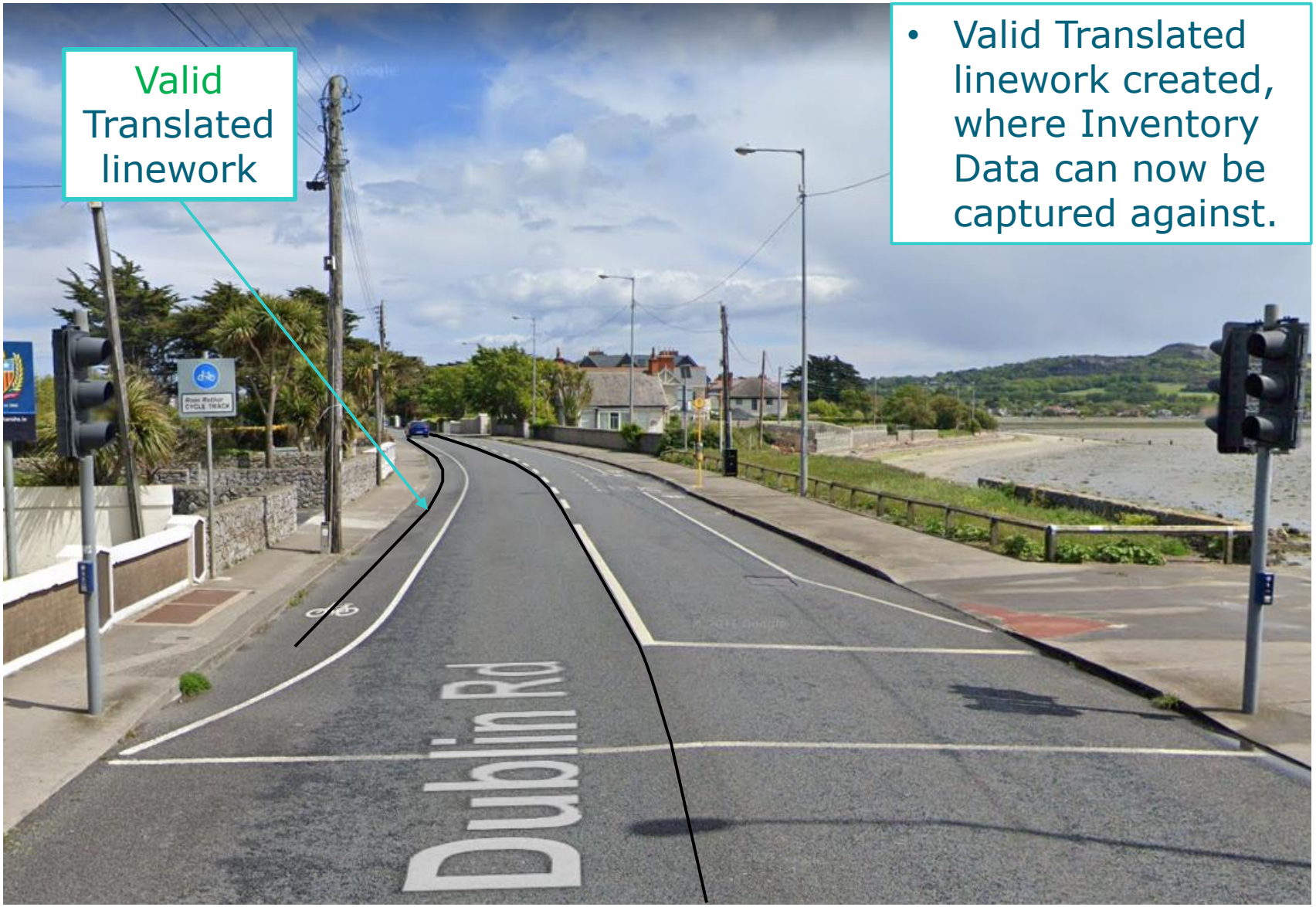

- Sections of the Roadway predominately for Cyclists.


- Current OSI Prime 2 centreline linework.

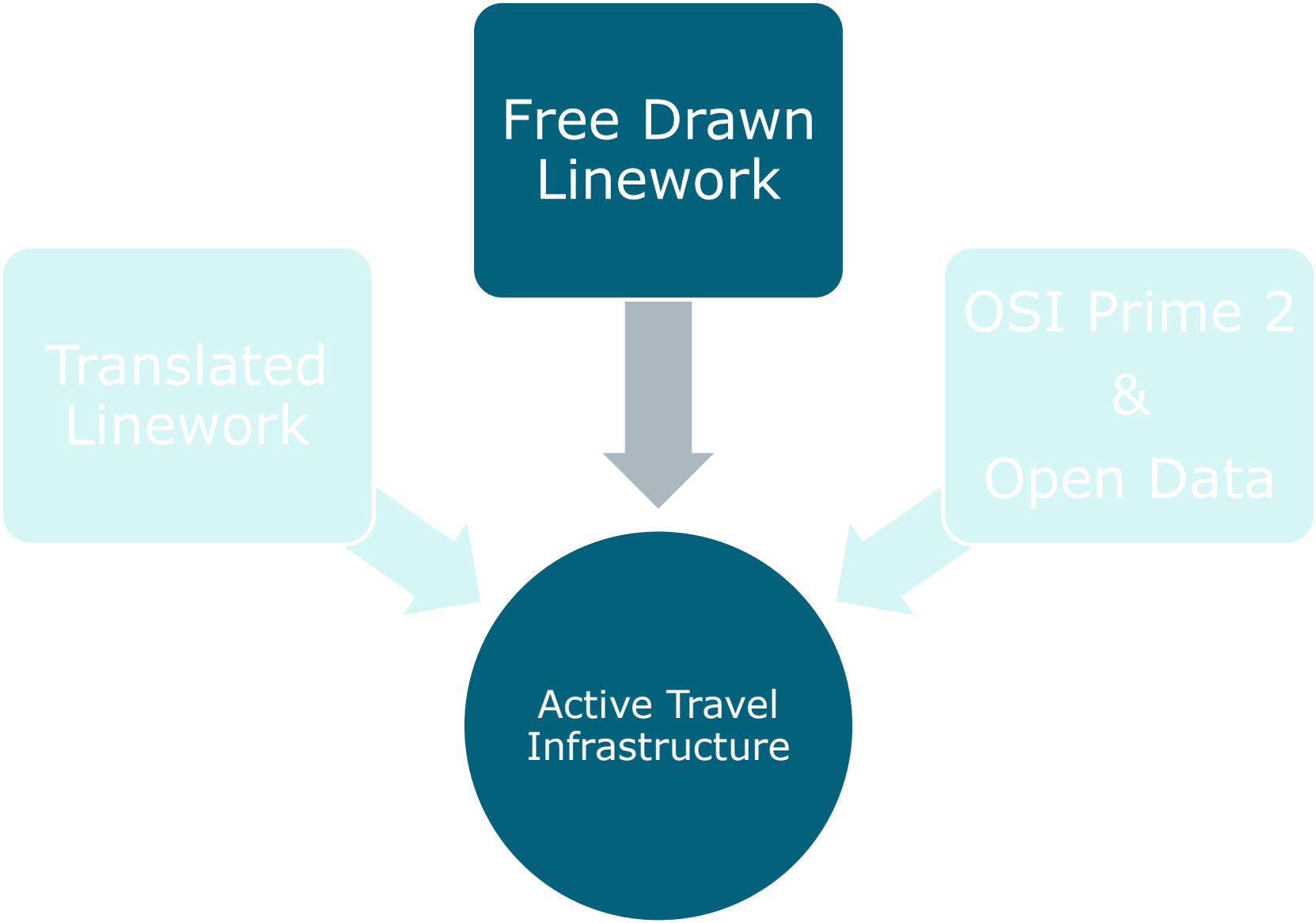

- Select a Start/End Point along the Road centreline.

- Specify an offset to an ATI.

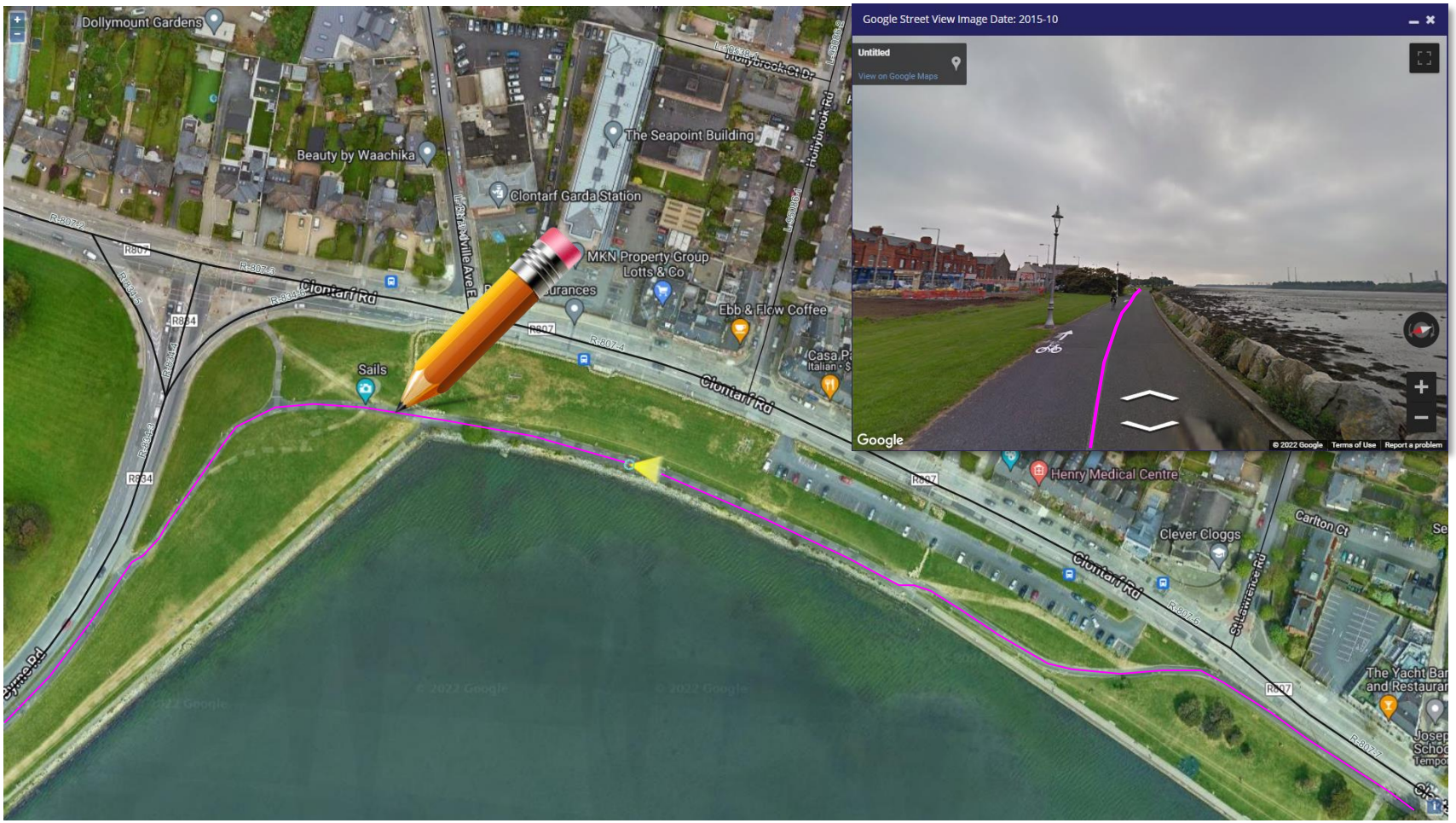

- ATI edge created using existing centreline geometry.



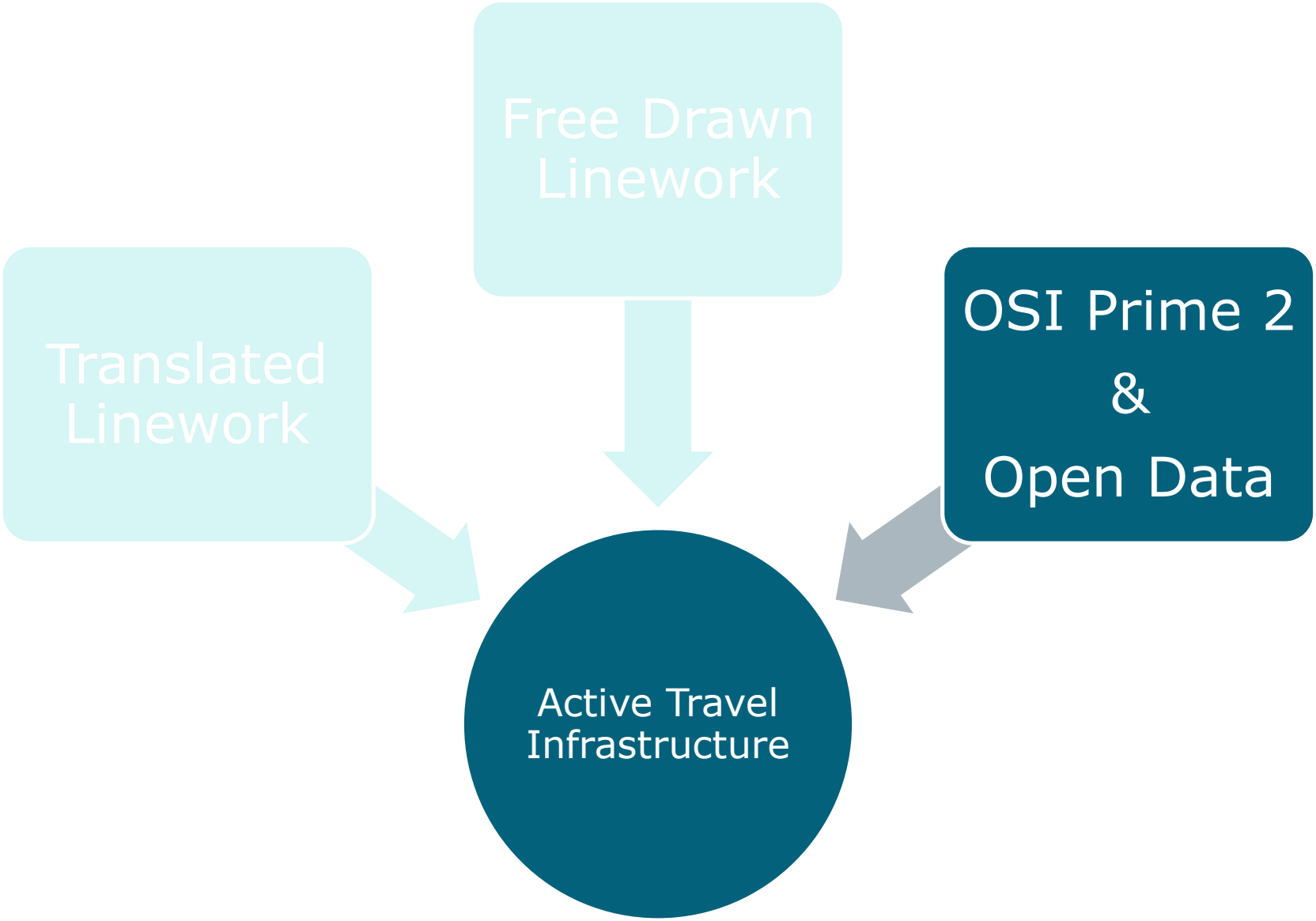

- Valid Translated linework created, where Inventory Data can now be captured against.


Free Drawn Linework
Translated Linework
OSI Prime 2 & Open Data
Active Travel Infrastructure

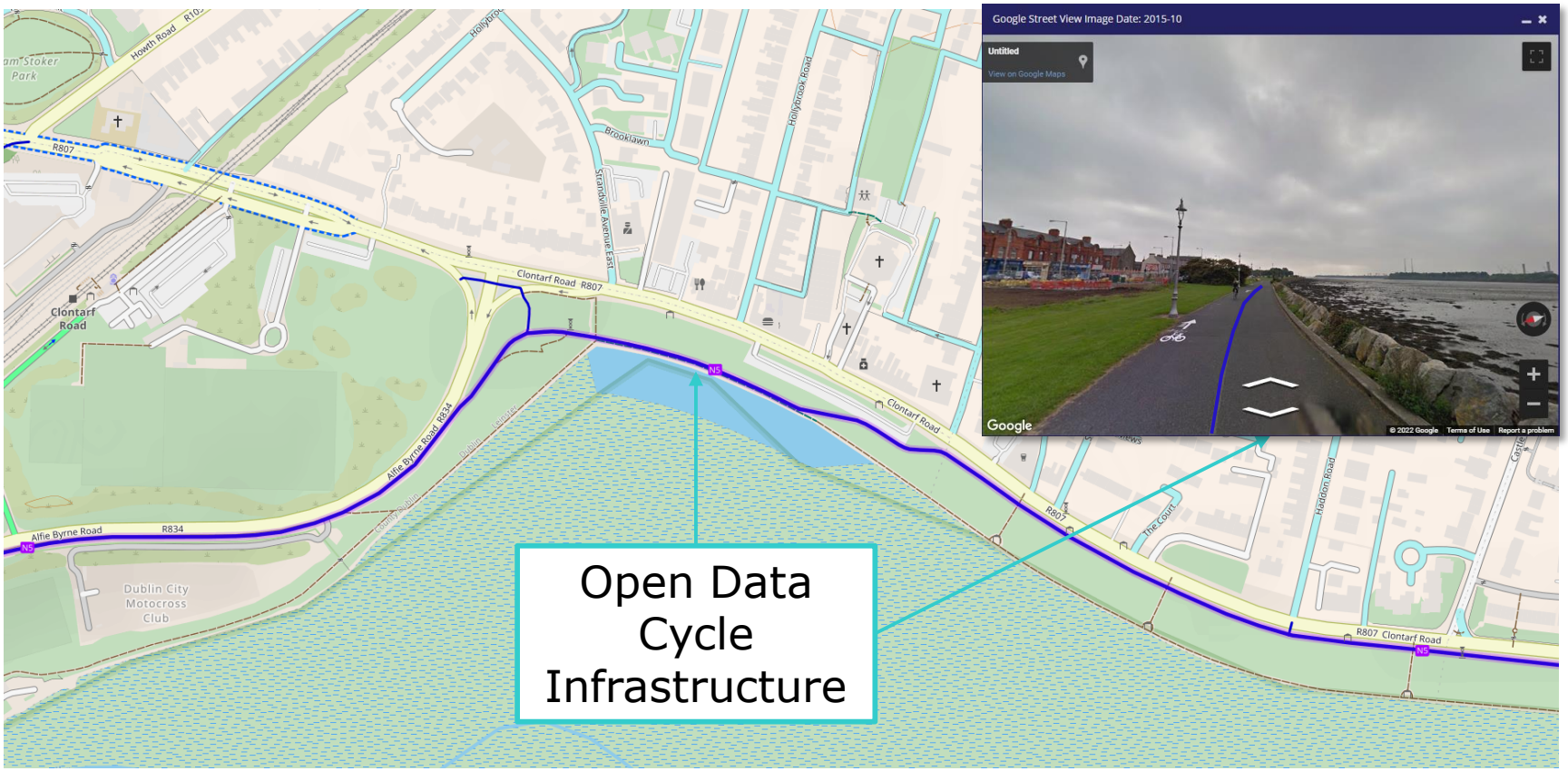

- Where ATI's currently have no linework.



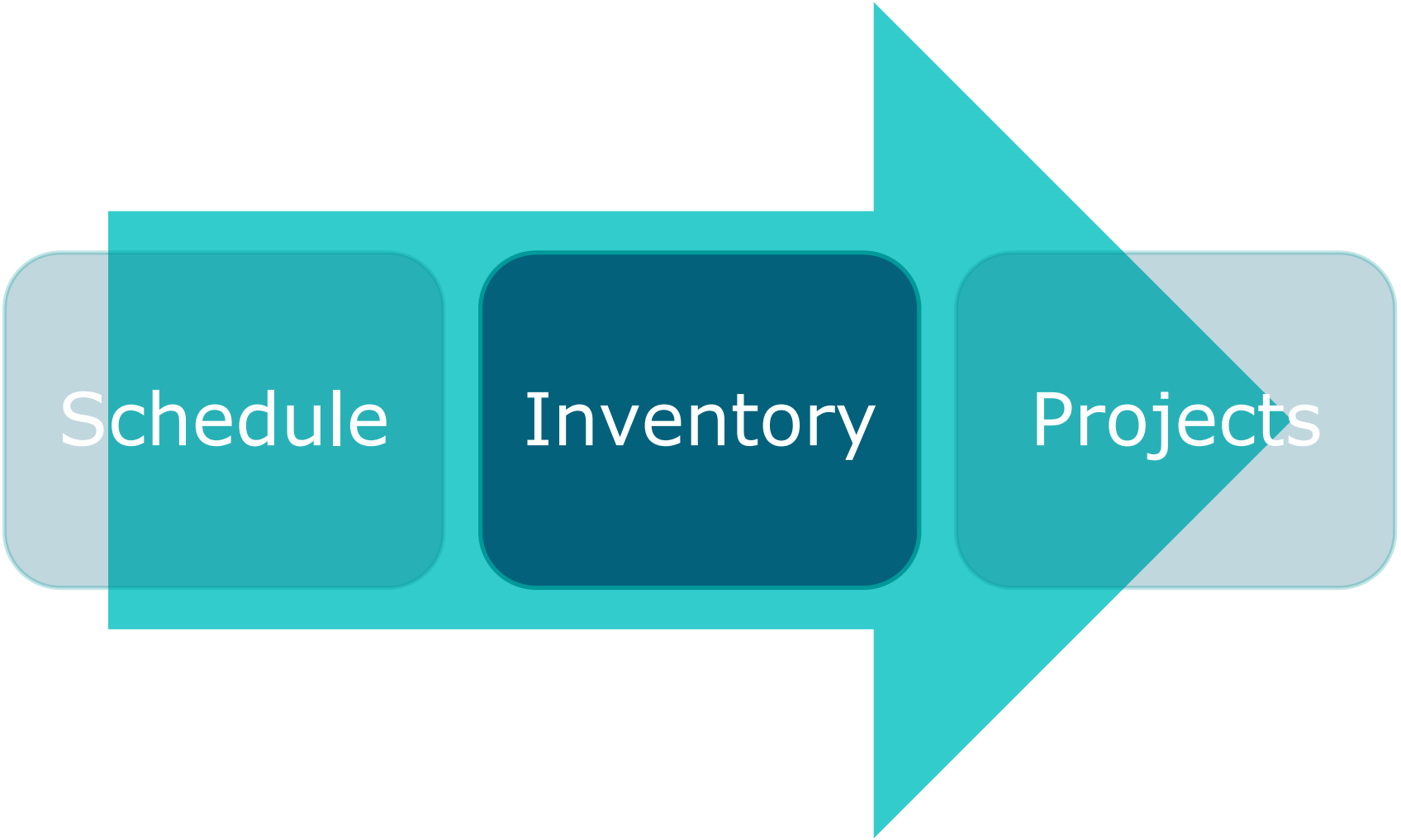

- Solutions have been proposed to facilitate a free draw tool to add new Linework to the Network.


Free Drawn Linework
Translated Linework
OSI Prime 2 & Open Data
Active Travel Infrastructure


- Where ATI's currently have no linework.

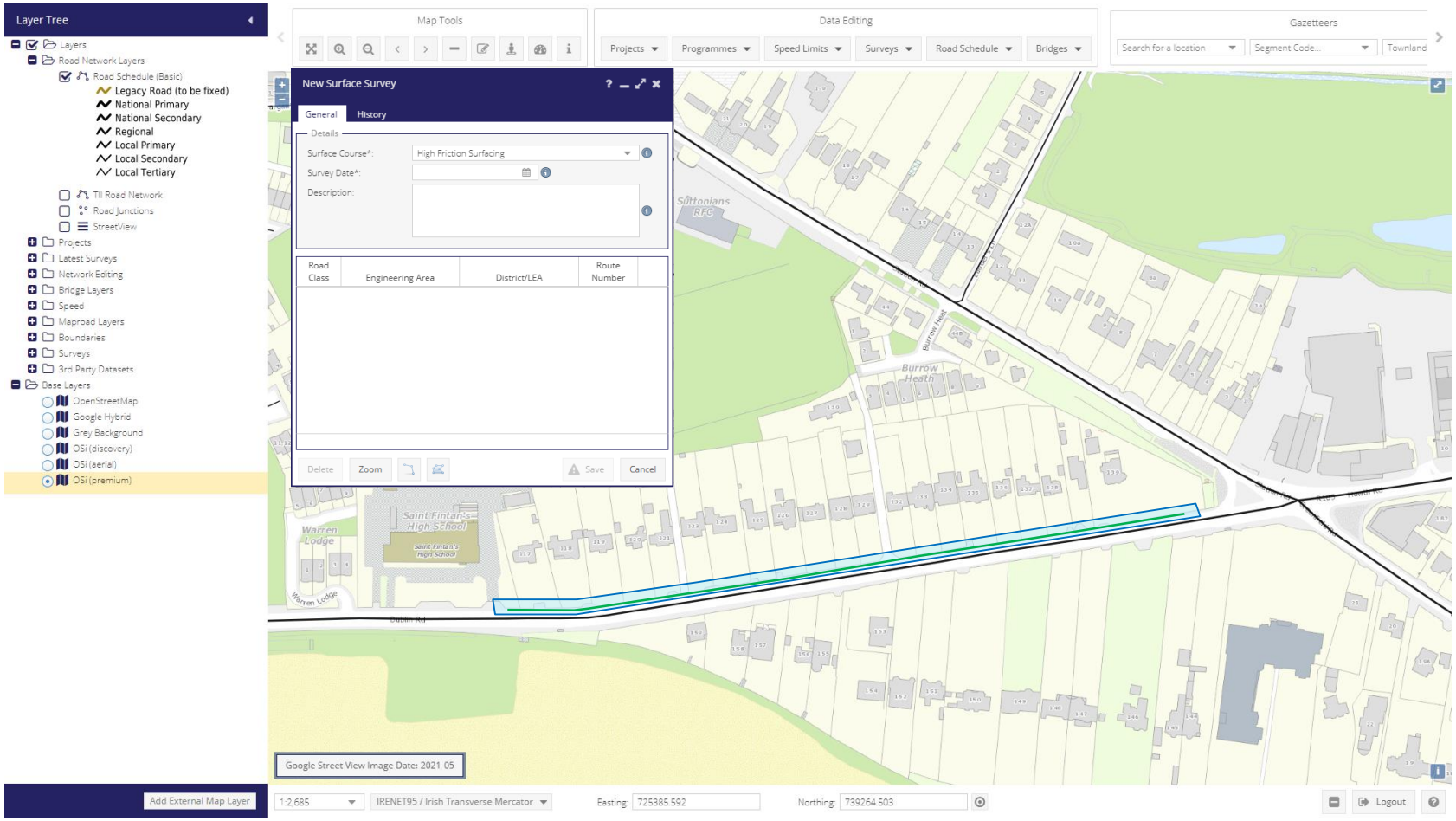



- Proposal to import existing datasets i.e. incorporate open data layers into MapRoad Browser Application to expedite the creation of the network.

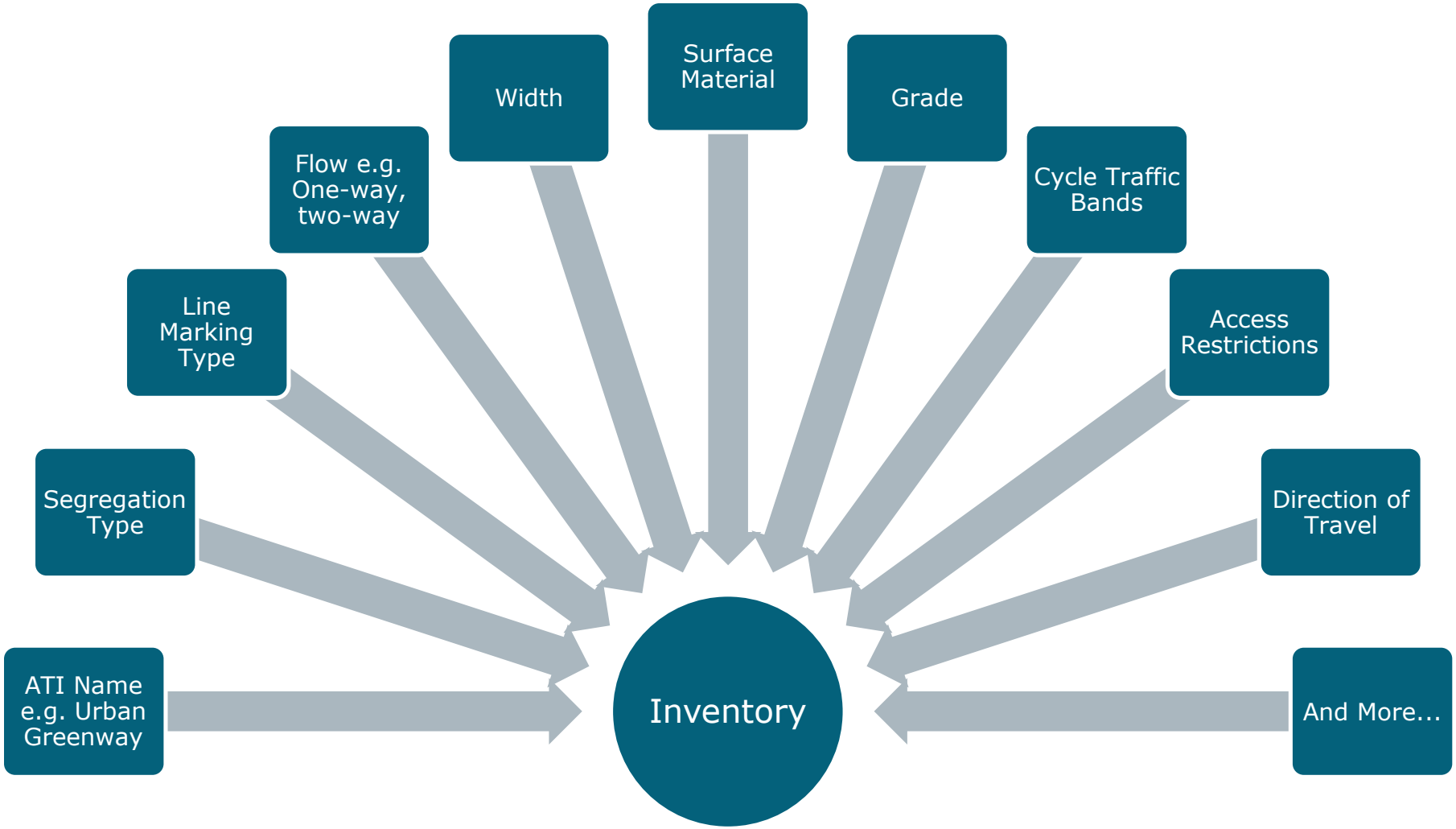

Schedule
Inventory
Projects

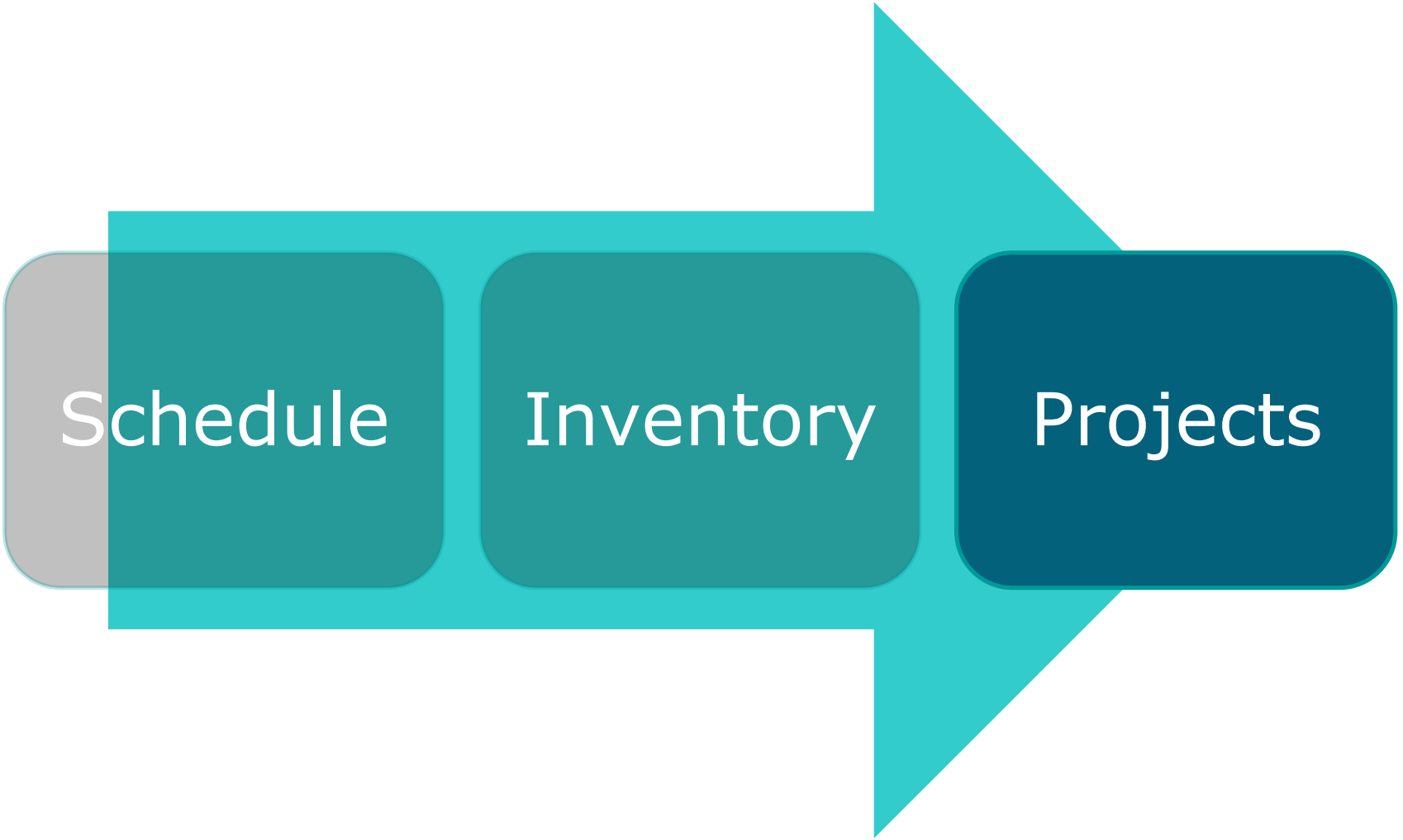
# Asset Management Tools

- ~~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?



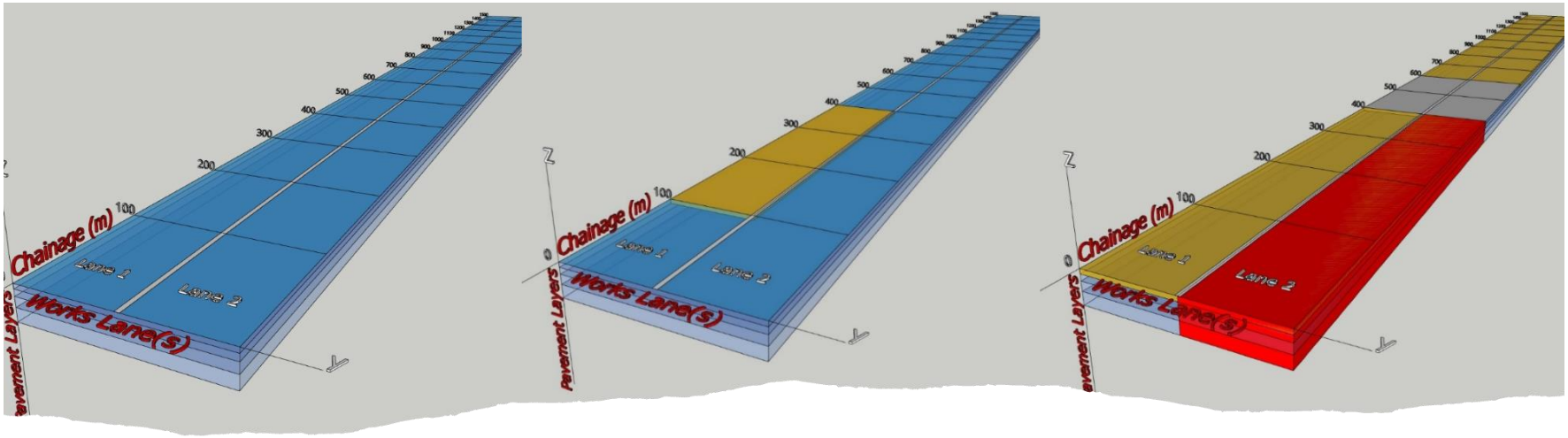

- Apply Inventory surveys through the MapRoad Browser Application.


Surface Material
Width
Grade
Flow e.g. One-way, two-way
Cycle Traffic Bands
Line Marking Type
Access Restrictions
Segregation Type
Direction of Travel
ATI Name e.g. Urban Greenway
Inventory
And More...


Schedule
Inventory
Projects

# 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.

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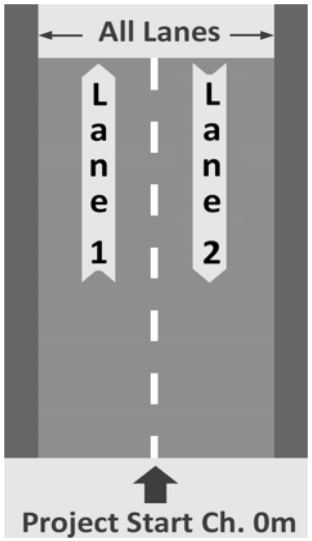
| Lane 1 | Lane 2 |
|---|---|
| Traffic Lane | Traffic Lane |



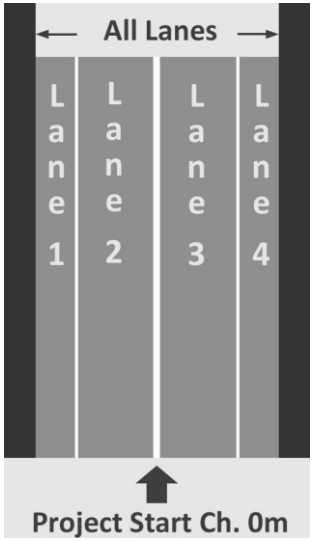

**LCD Description**

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

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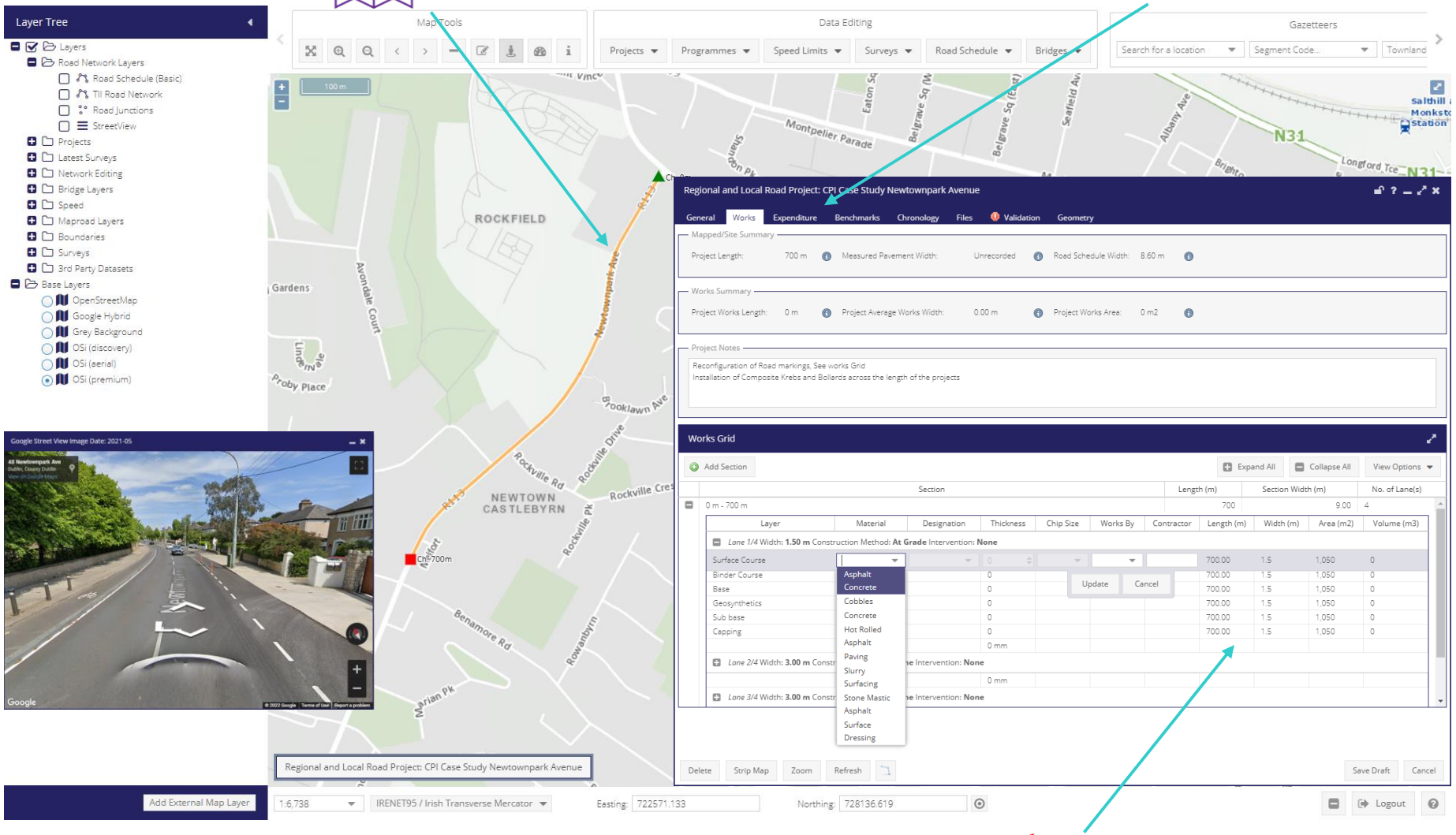
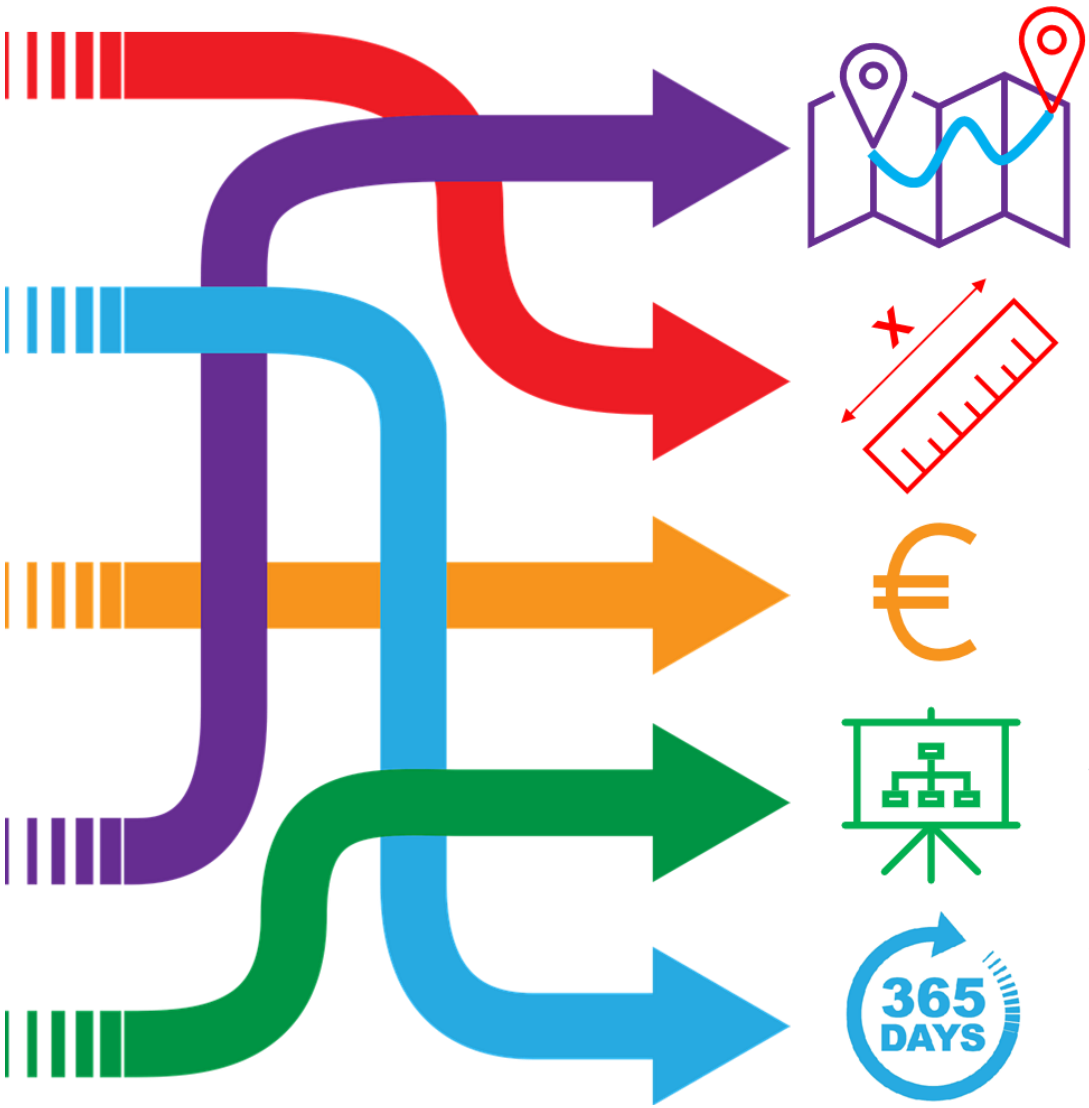
ATI's by location

Expenditure




No. off, Length, width, area



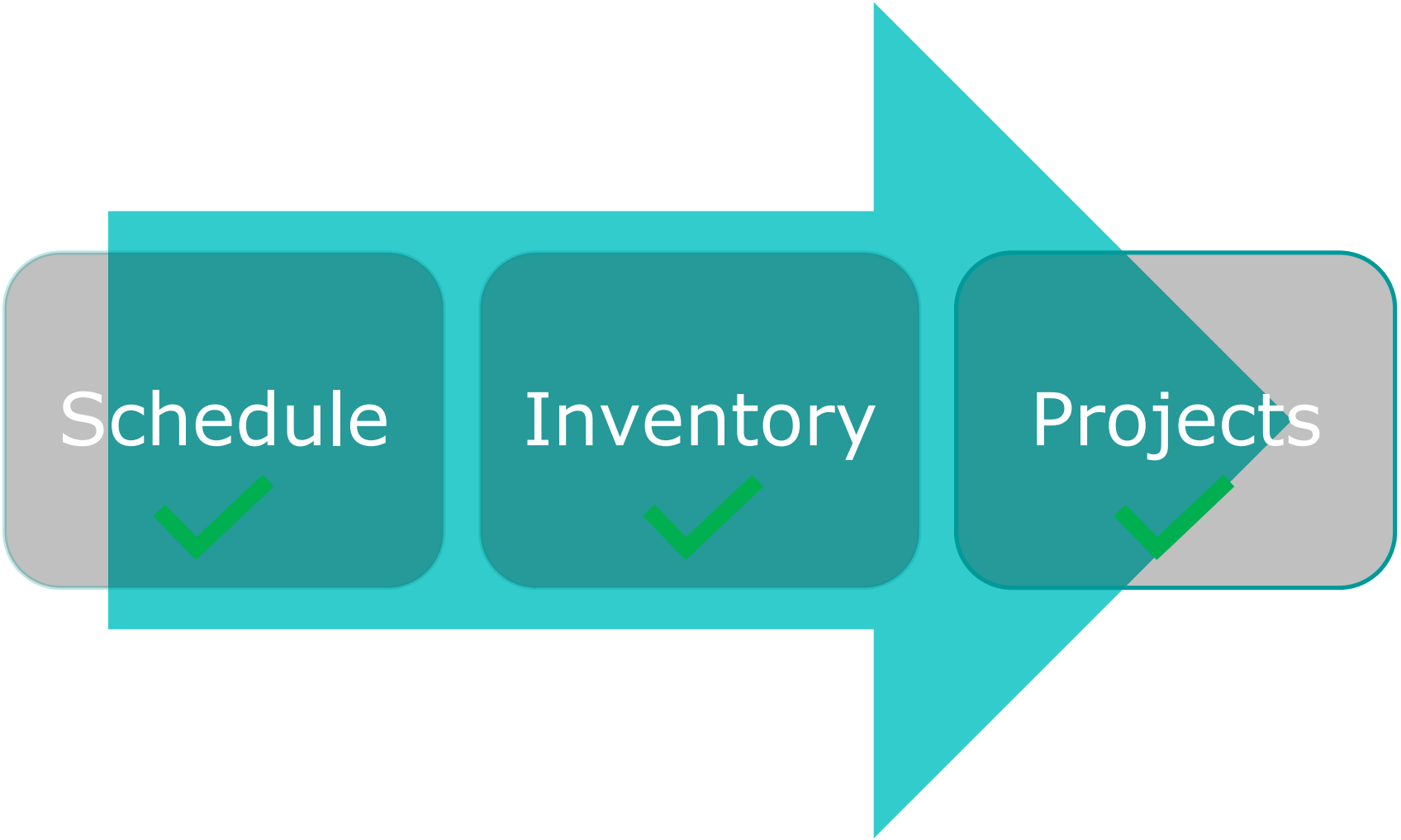
ATI's by location ✓

No. off, Length, width, area ✓

Expenditure ✓

Analysis; materials, condition, maintenance

Year on year outputs, Continual improvement

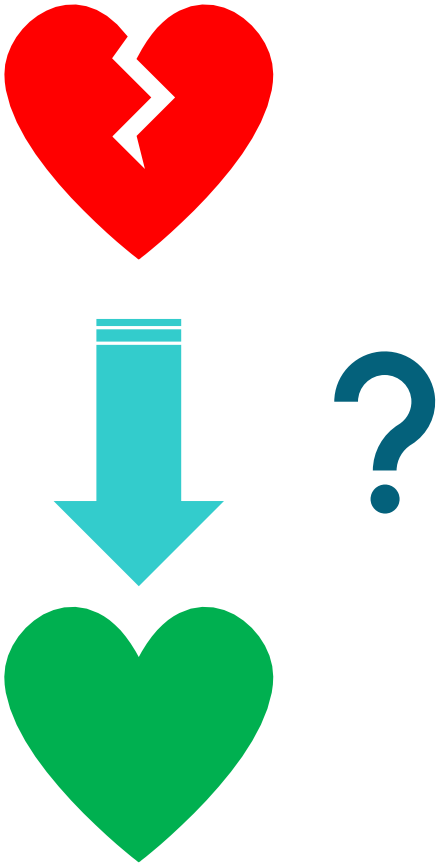

Schedule
Inventory
Projects

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

RMO
An Oifig um Bainistiú Bóithre
Road Management Office