

# TAMING THE ROAD

## A GIS-based visualisation and spatial analysis methodology towards retrofitting the intermediate urban mosaic

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*International doctorate certification in the doctoral degree (UPC)*

Director of the research group

Prof. Dr. Gerhard Schmitt  
Chair of Information Architecture · ETH Zurich

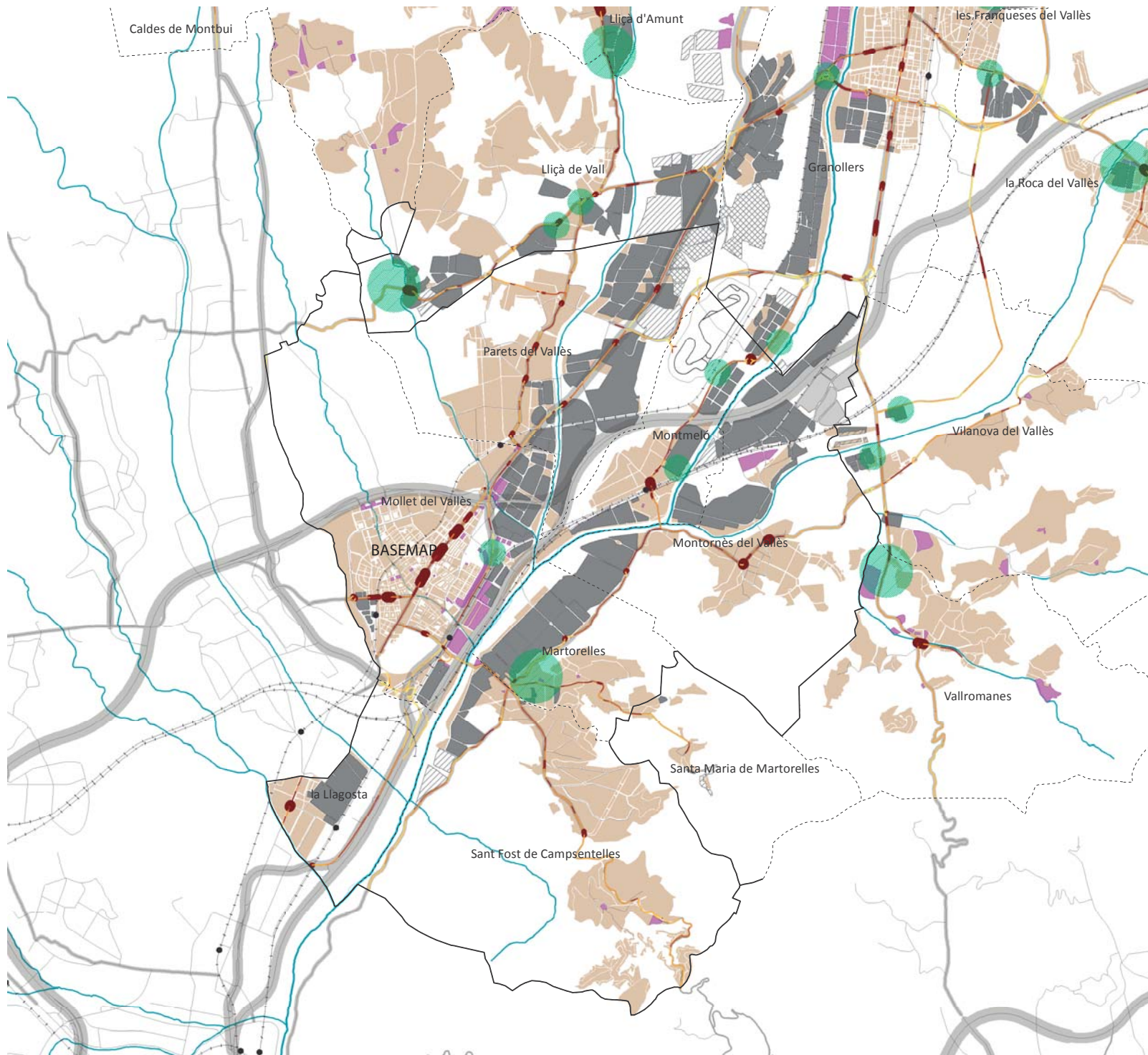
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## Appendix

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### Appendix A: Graphic documentation in relation to chapter 8

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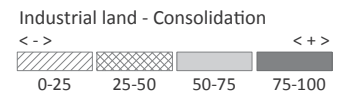
**1 DIAGNOSIS**

**1** PDU Sector of the Baix Vallès area around Mollet

**1** Trip generation nodes

**BASEMAP**

-  Sector
-  Municipal boundaries
-  Urban land - Pla Territorial Metropolità Barcelona
-  Urban land - Tertiary




**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)




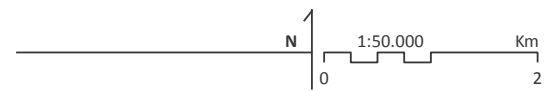
Trip generation indicator

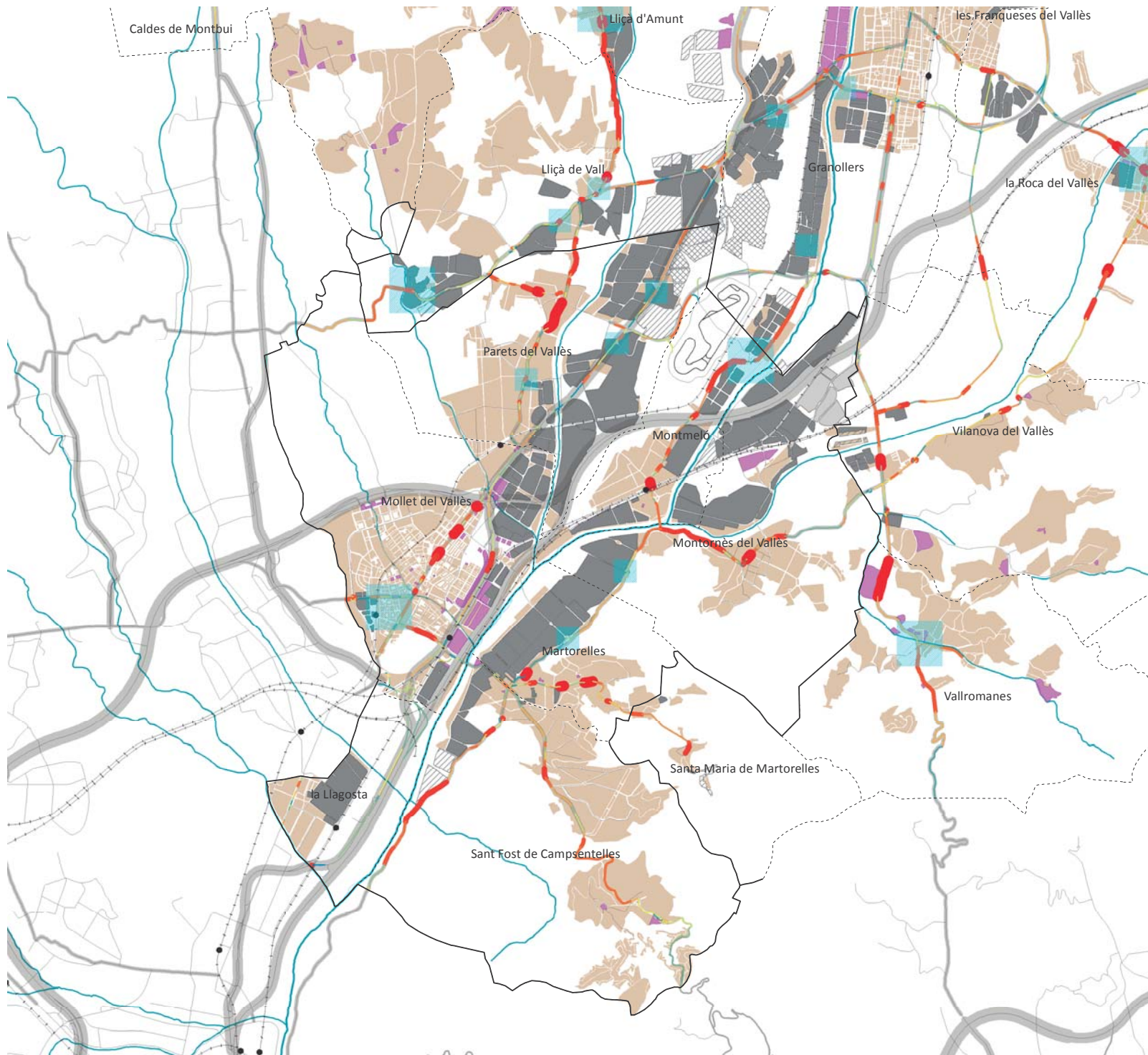


Railway network 

**DIAGNOSIS**

 Trip generation nodes





- 1 DIAGNOSIS**
- 1** PDU Sector of the Baix Vallès area around Mollet
- 2** Diversity Nodes

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

Industrial land - Consolidation

0-25	25-50	50-75	75-100

**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)

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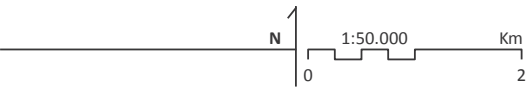
Diversity Indicator

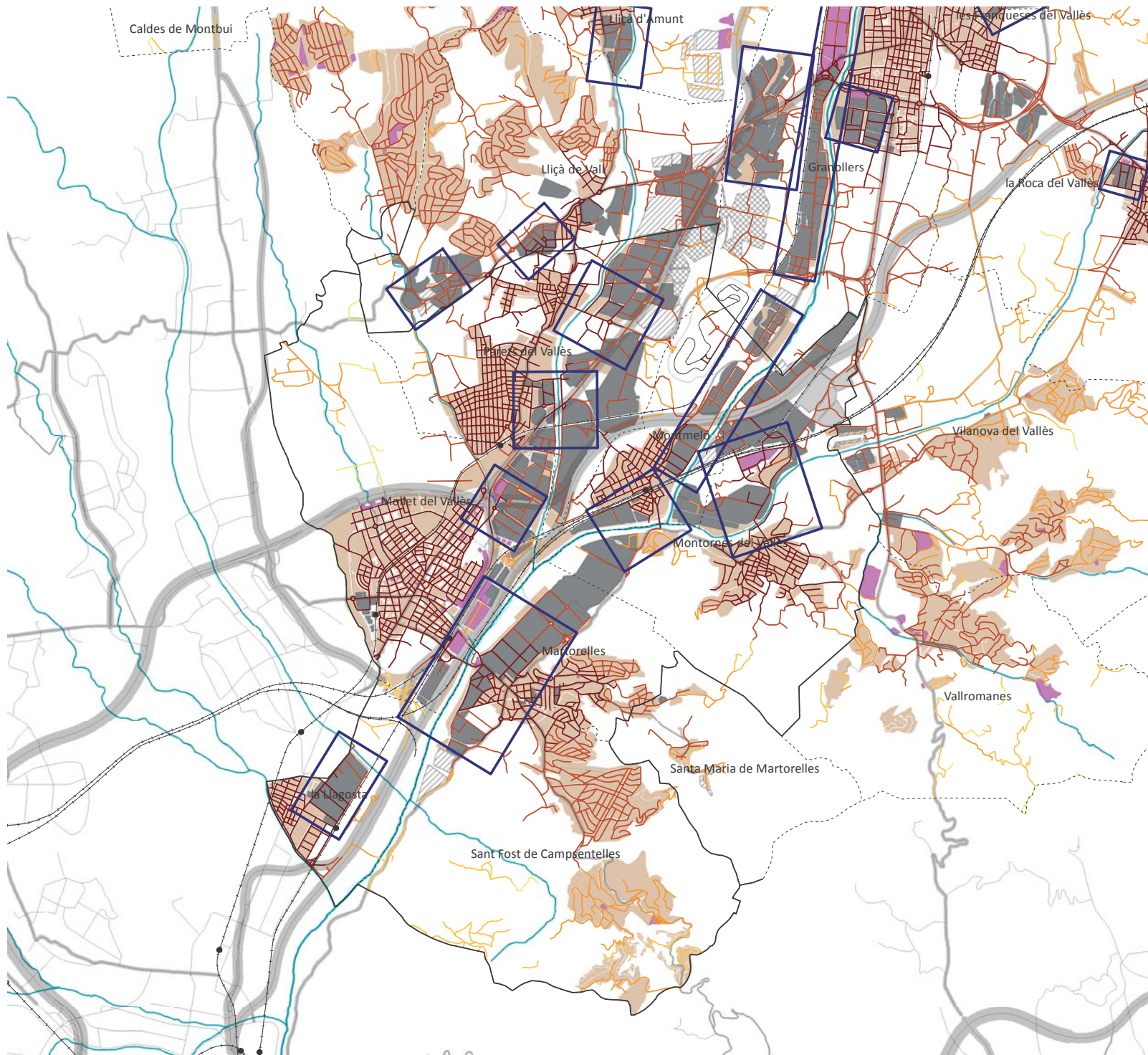
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Railway network

**DIAGNOSIS**

- Diversity Nodes





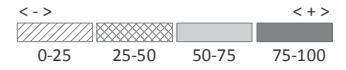
**1 DIAGNOSIS**

- 1** PDU Sector of the Baix Vallès area around Mollet
- 3** Trip generation areas

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

**Industrial land - Consolidation**



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



Trip generation indicator

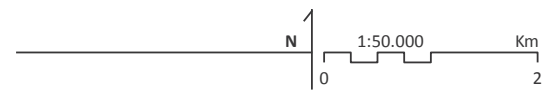


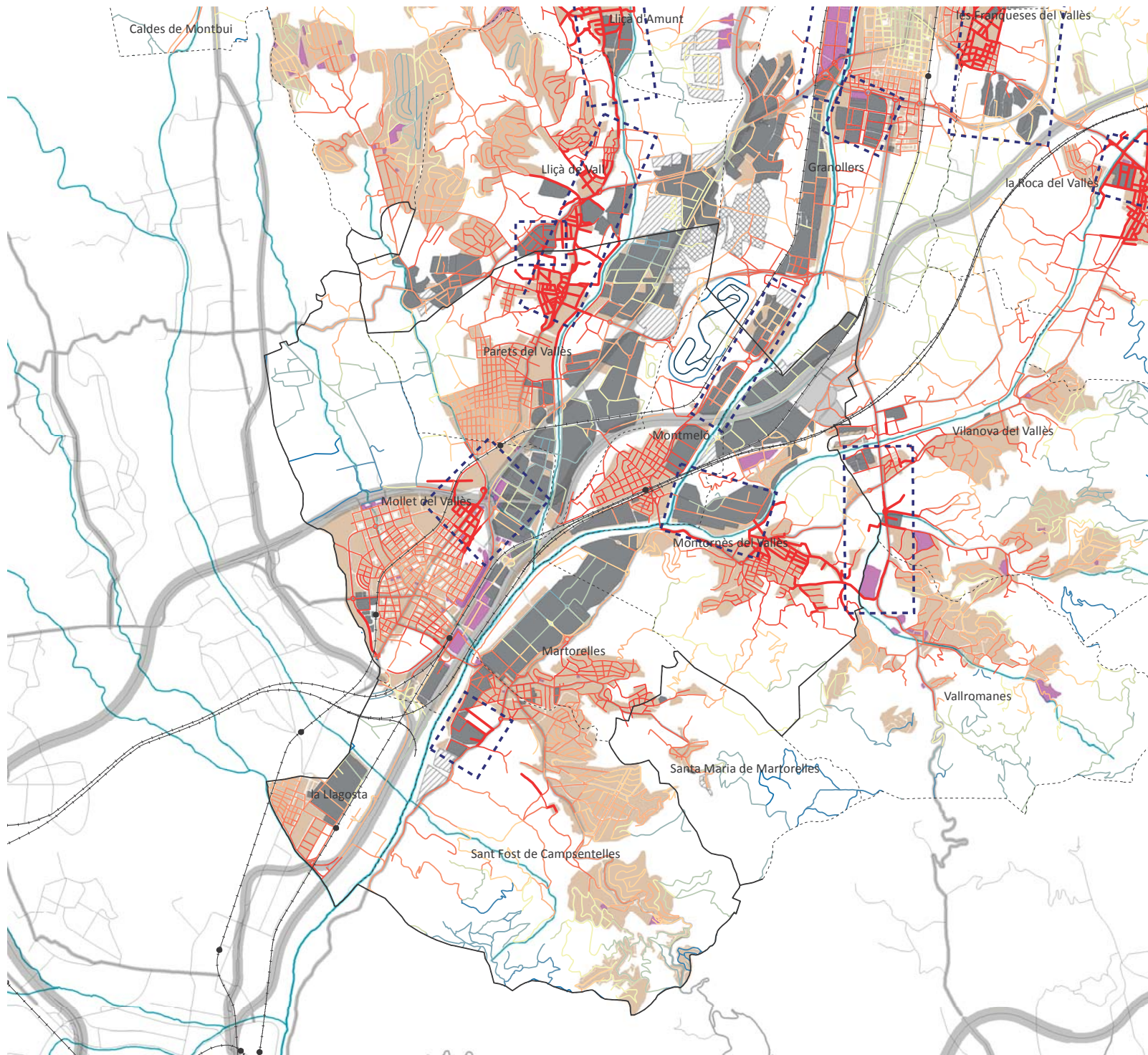
Railway network



**DIAGNOSIS**

- Trip generation areas



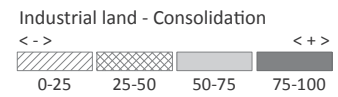


**1 DIAGNOSIS**

- 1** PDU Sector of the Baix Vallès area around Mollet
- 4** Diversity Areas

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



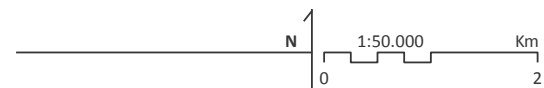
Diversity Indicator

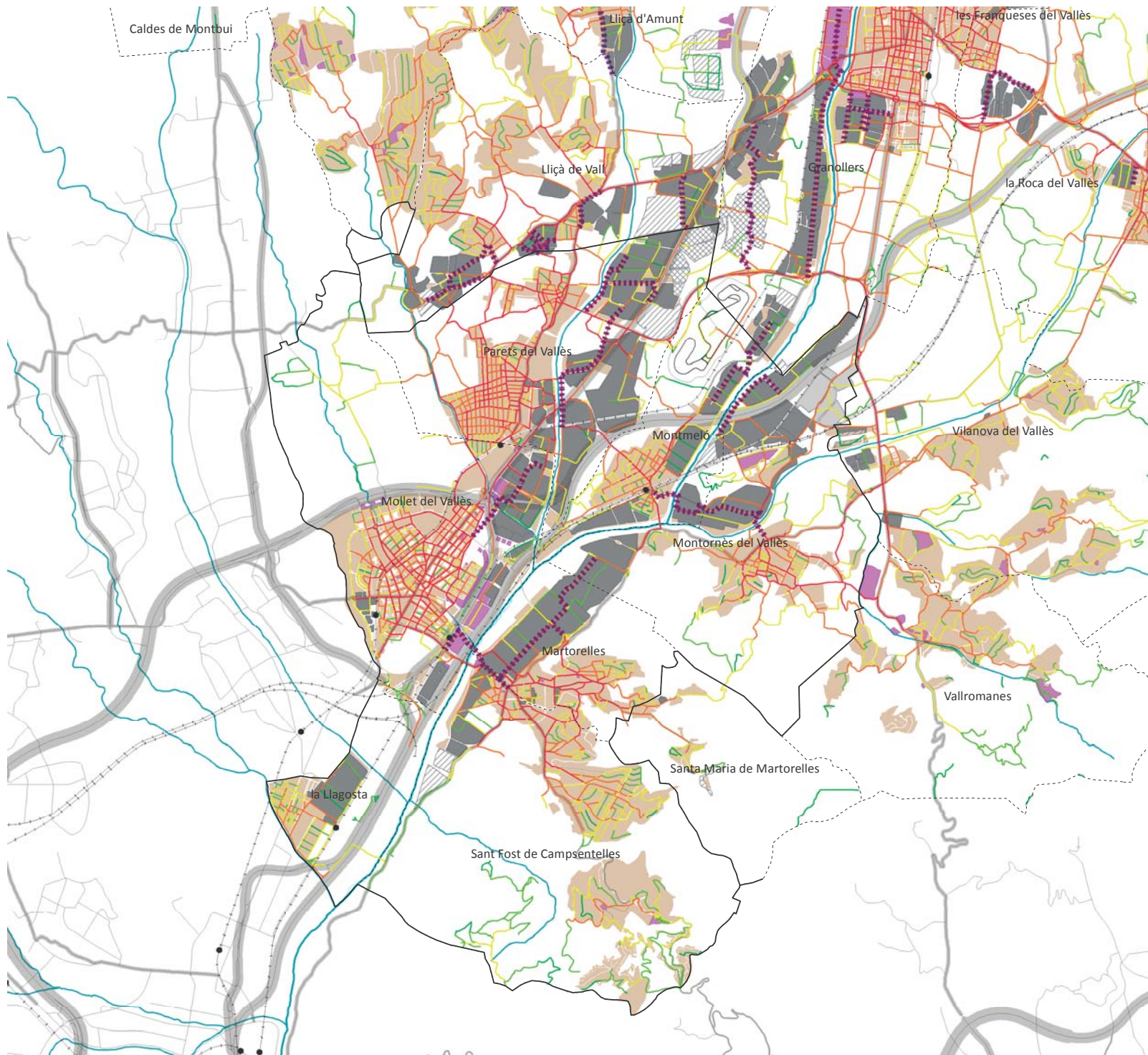


Railway network

**DIAGNOSIS**

- Diversity Areas



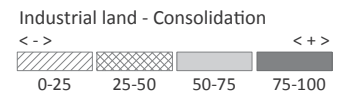


**1 DIAGNOSIS**

- 1** PDU Sector of the Baix Vallès area around Mollet
- 5** Structuring connectors

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

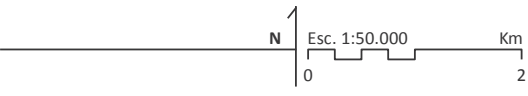


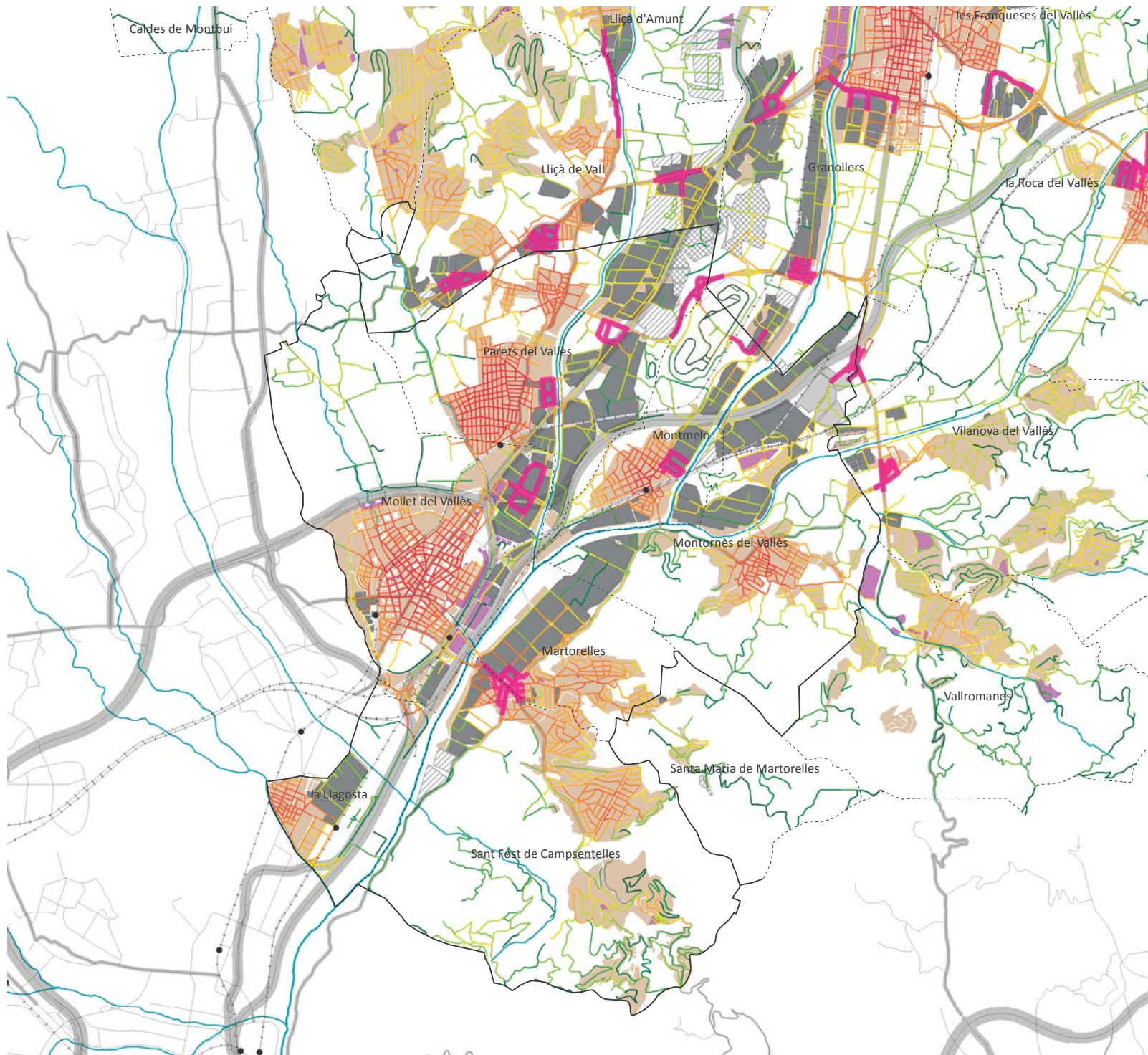
**ROAD AND RAILWAY NETWORKS**

- Average daily traffic (Source: Generalitat de Catalunya, 2014)
- 
- Betweenness centrality 2000m
- 
- Railway network

**DIAGNOSIS**

- Structuring connectors

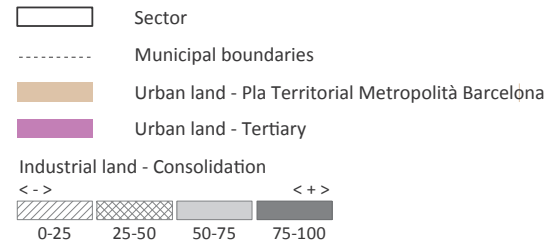




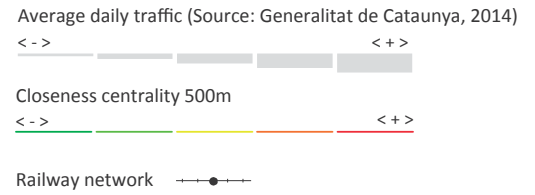
**1 DIAGNOSIS**

- 1** PDU Sector of the Baix Vallès area around Mollet
- 6** Structuring segments

**BASEMAP**

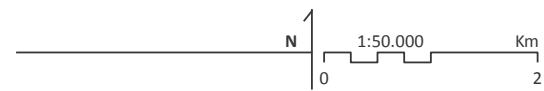


**ROAD AND RAILWAY NETWORKS**

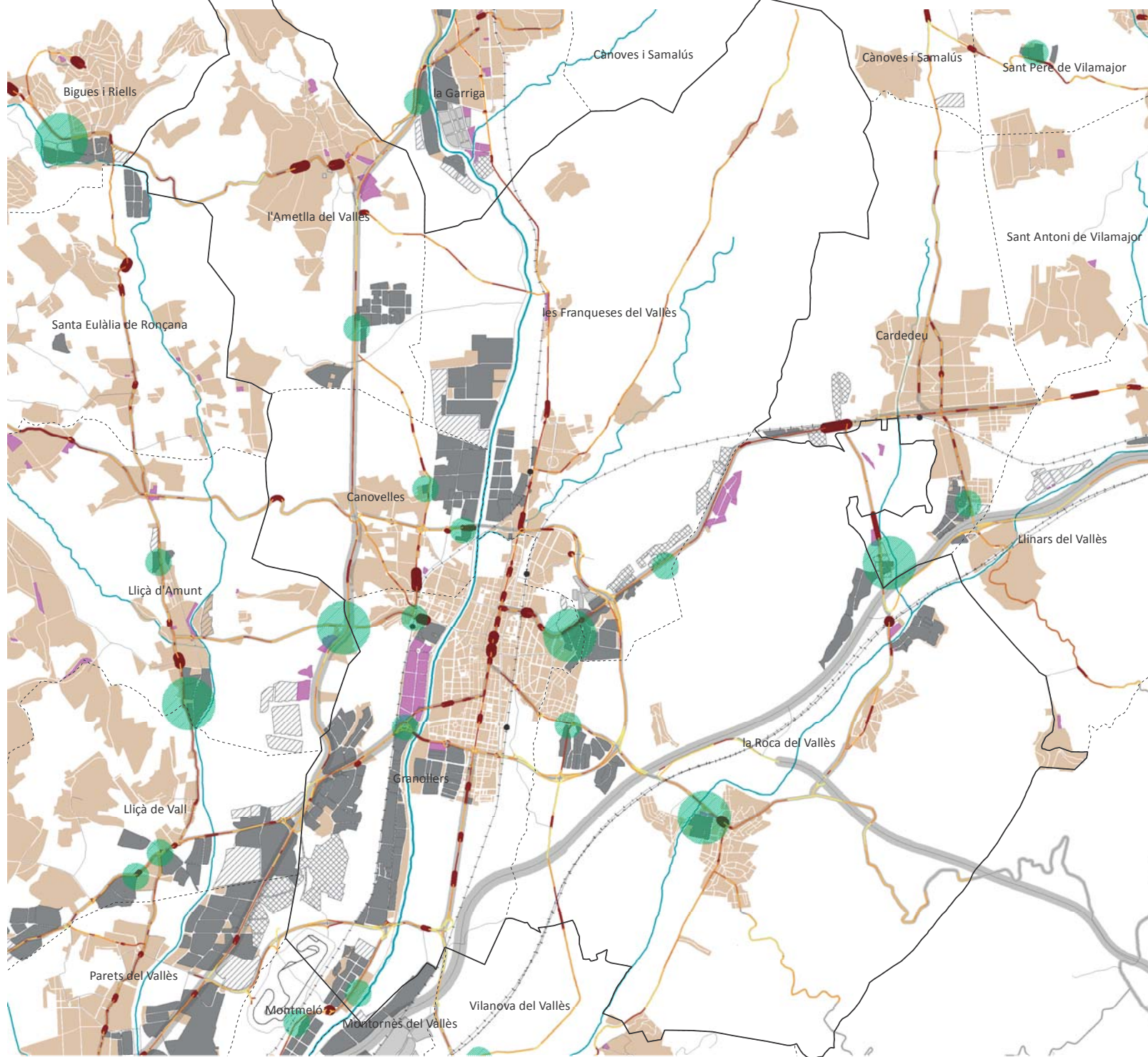


**DIAGNOSIS**

- Structuring segments







**1 DIAGNOSIS**

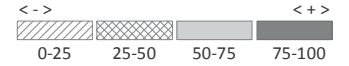
**2** PDU Sector of the Baix Congost around Granollers

**1** Trip generation nodes

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

Industrial land - Consolidation



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



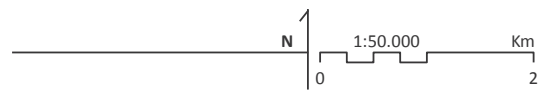
Trip generation indicator

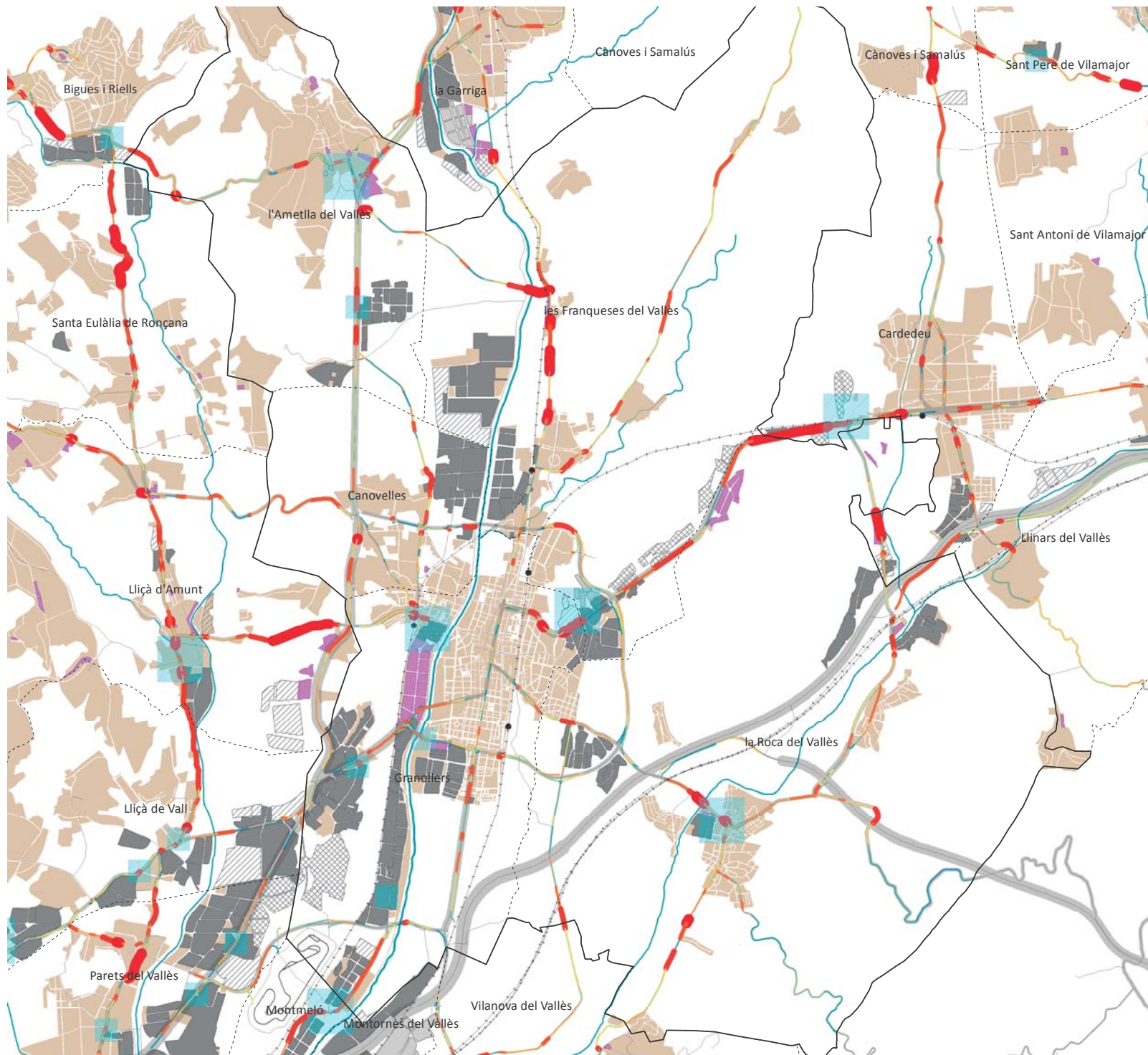


Railway network

**DIAGNOSIS**

Trip generation nodes





- 1 DIAGNOSIS**
- 2** PDU Sector of the Baix Congost around Granollers
- 2** Diversity Nodes

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

Industrial land - Consolidation



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



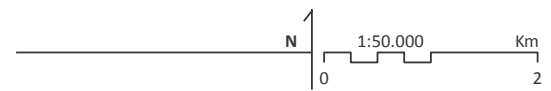
Diversity Indicator



Railway network





**DIAGNOSIS**

- Diversity Nodes



- 1** DIAGNOSIS
- 2** PDU Sector of the Baix Congost around Granollers
- 3** Trip generation areas

**BASEMAP**

-  Sector
-  Municipal boundaries
-  Urban land - Pla Territorial Metropolità Barcelona
-  Urban land - Tertiary

**Industrial land - Consolidation**



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



Trip generation indicator

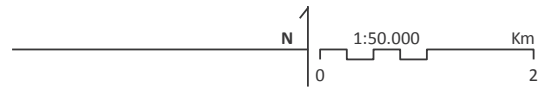
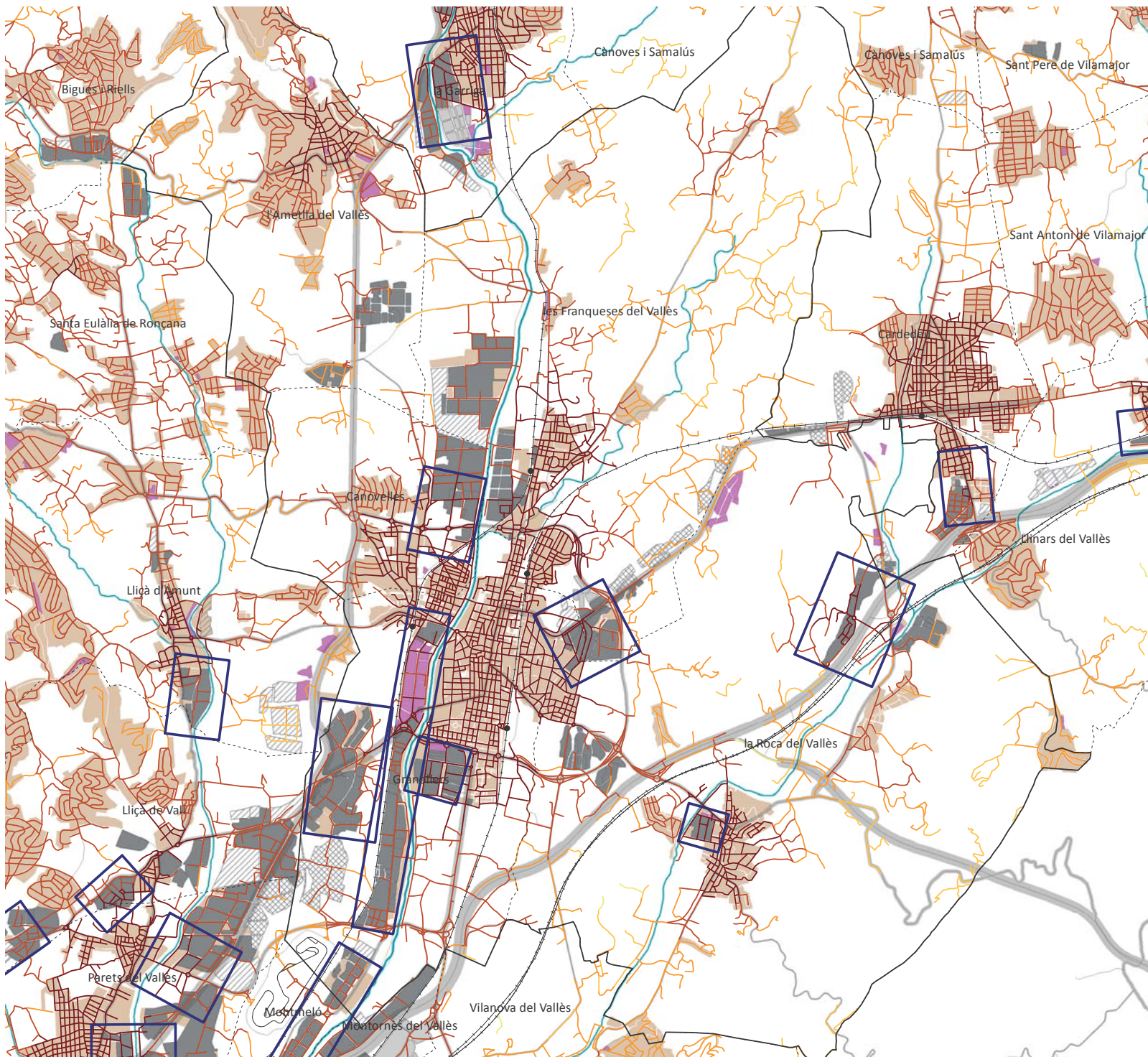


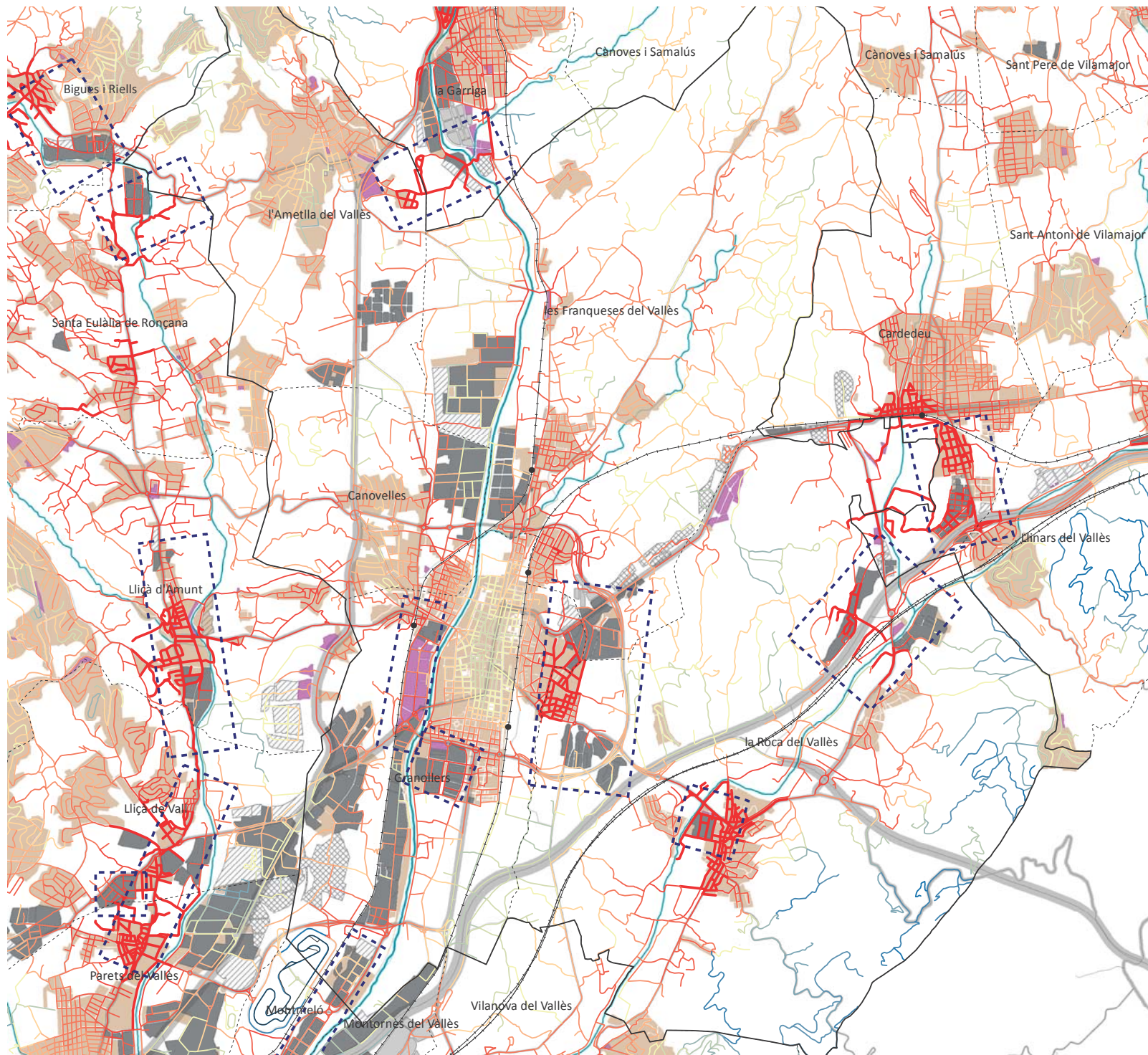
Railway network



**DIAGNOSIS**

-  Trip generation areas

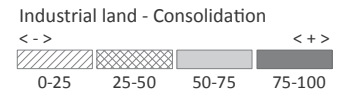




- 1 DIAGNOSIS**
- 2** PDU Sector of the Baix Congost around Granollers
- 4** Diversity Areas

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



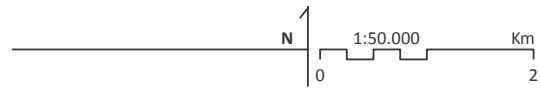
Diversity Indicator



Railway network





**DIAGNOSIS**

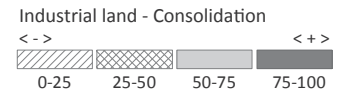
- Diversity Areas



- 1** DIAGNOSIS
- 2** PDU Sector of the Baix Congost around Granollers
- 5** Structuring connectors

**BASEMAP**

-  Sector
-  Municipal boundaries
-  Urban land - Pla Territorial Metropolità Barcelona
-  Urban land - Tertiary



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



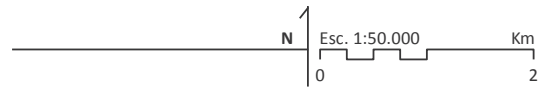
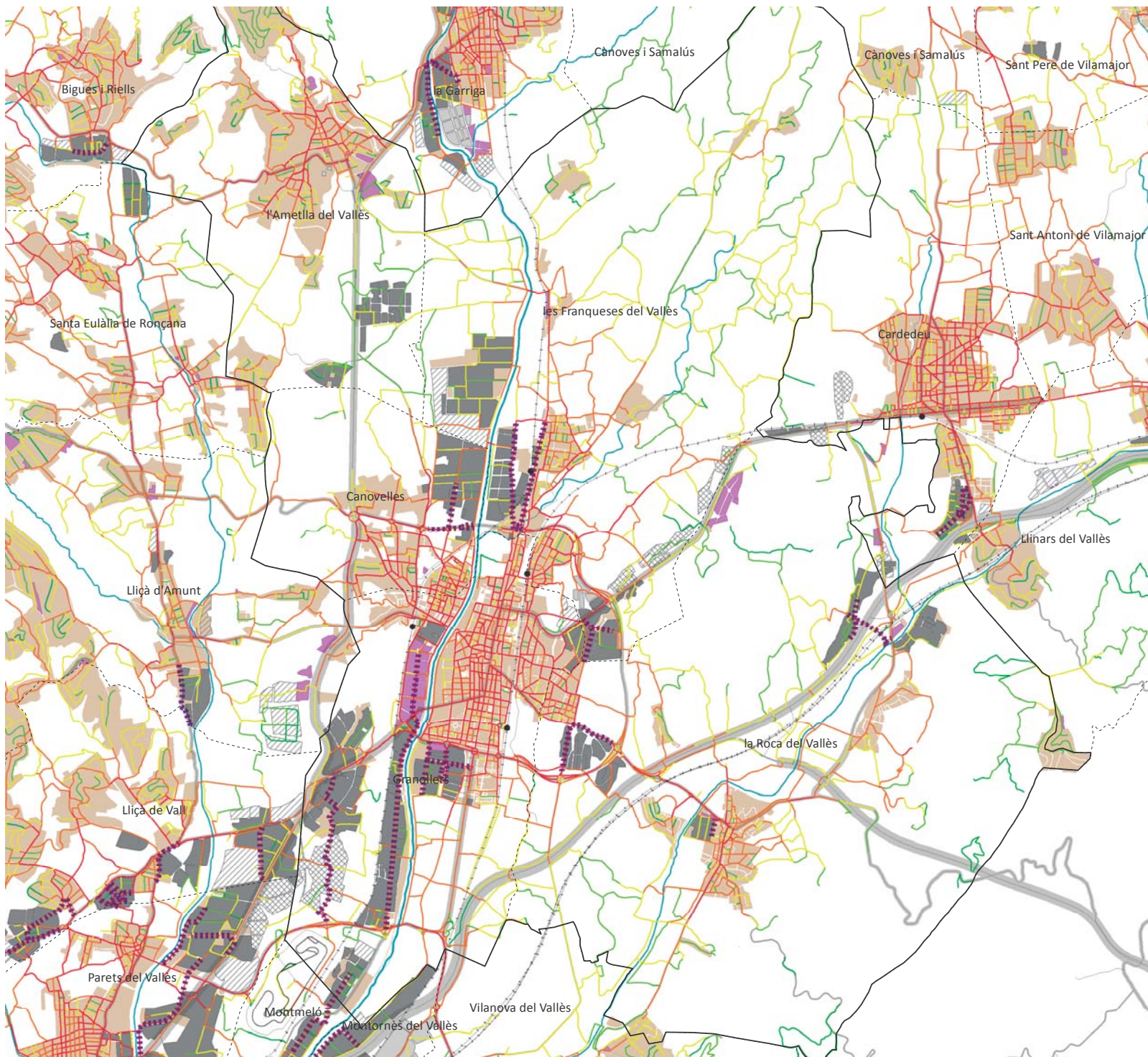
Betweenness centrality 2000m



Railway network 

**DIAGNOSIS**

-  Structuring connectors



- 1** DIAGNOSIS
- 2** PDU Sector of the Baix Congost around Granollers
- 6** Structuring segments

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

Industrial land - Consolidation

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0-25    25-50    50-75    75-100

**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)

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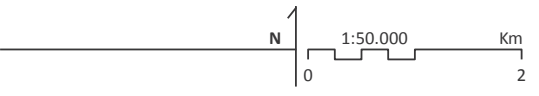
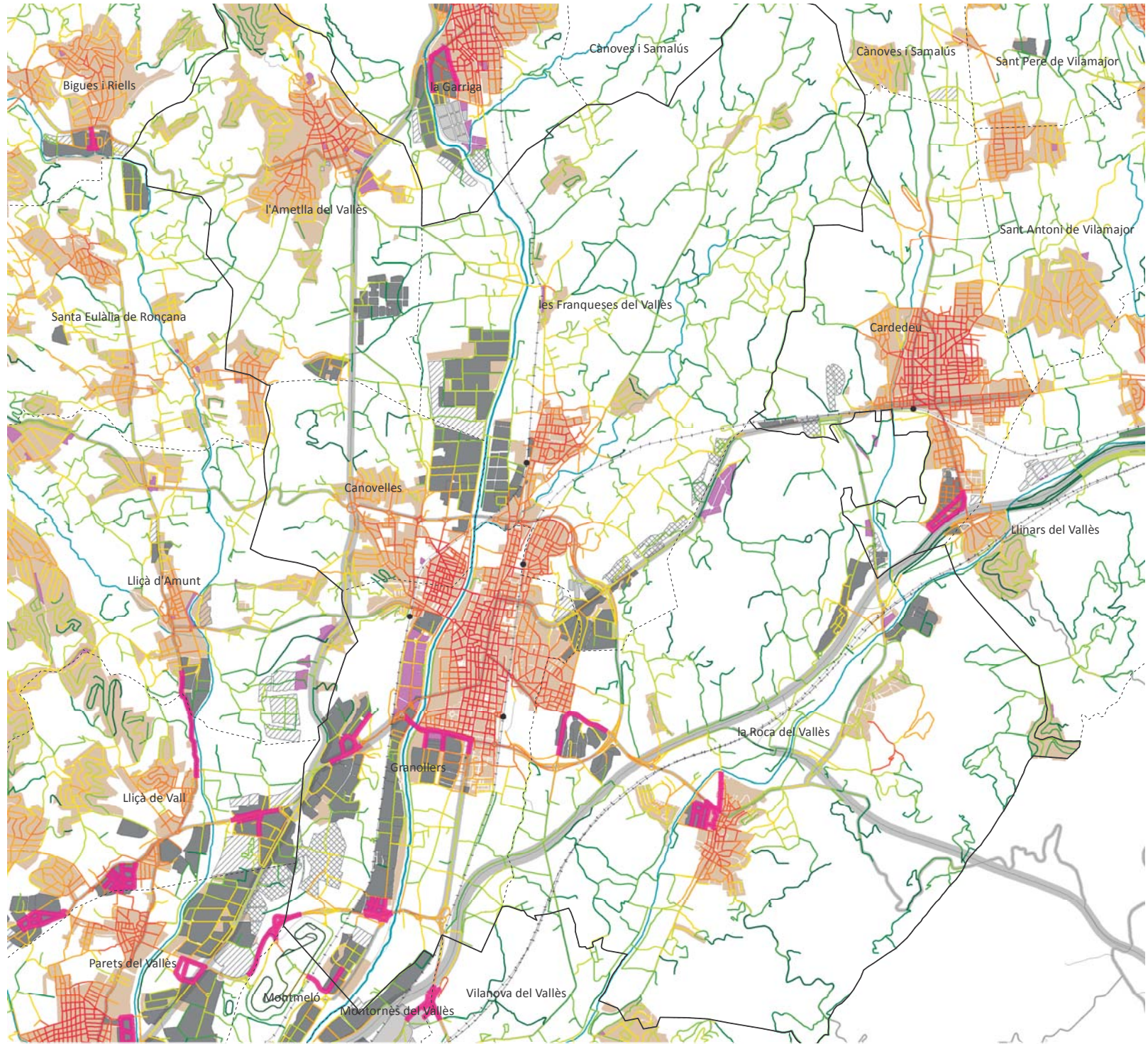
Closeness centrality 500m

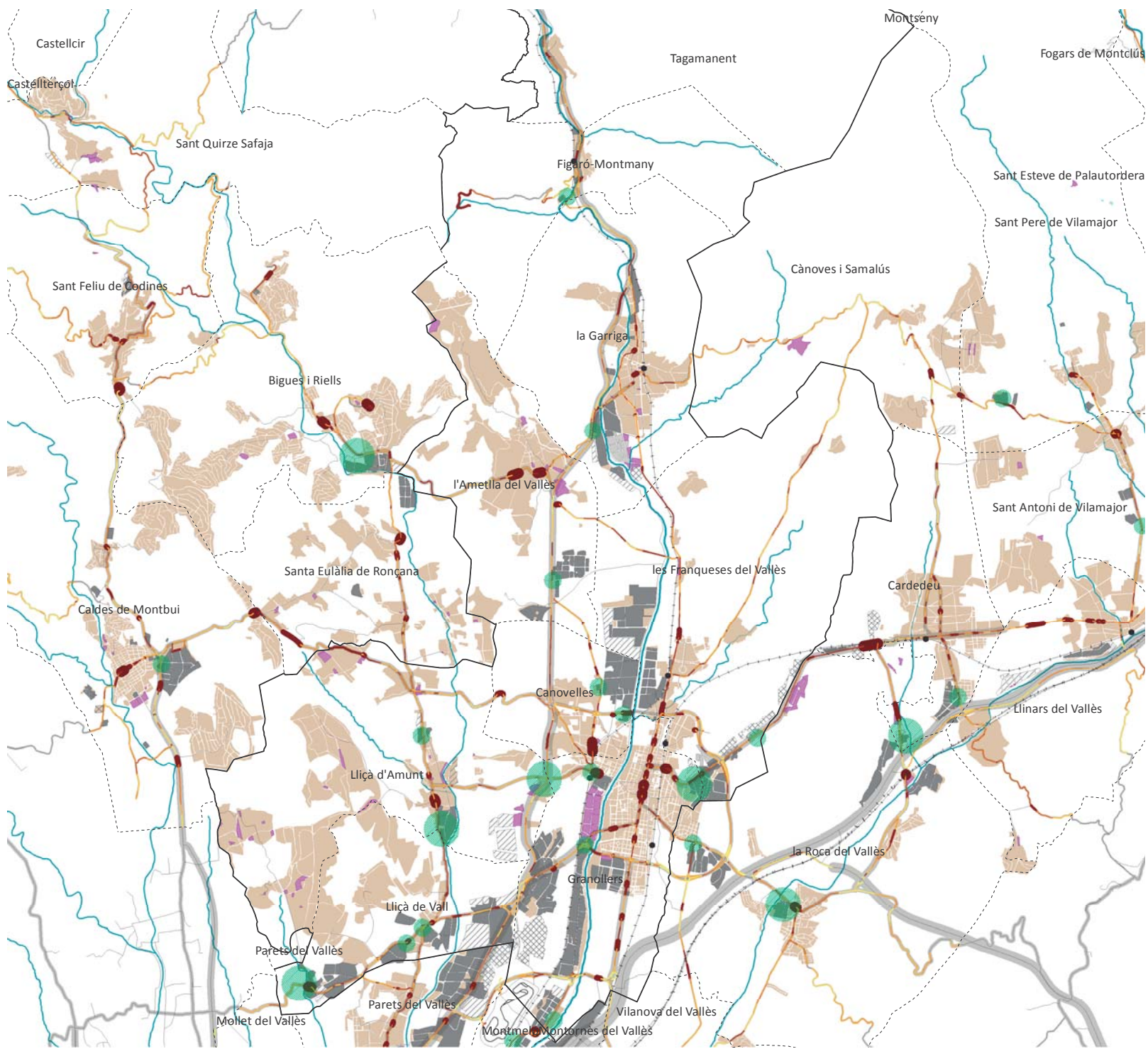
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Railway network

**DIAGNOSIS**

Structuring segments





- 1 DIAGNOSIS**
- 3** PDU Sector of the C-17 between Parets and La Garriga
- 1** Trip generation nodes

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

Industrial land - Consolidation

0-25	25-50	50-75	75-100

**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)

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Trip generation indicator

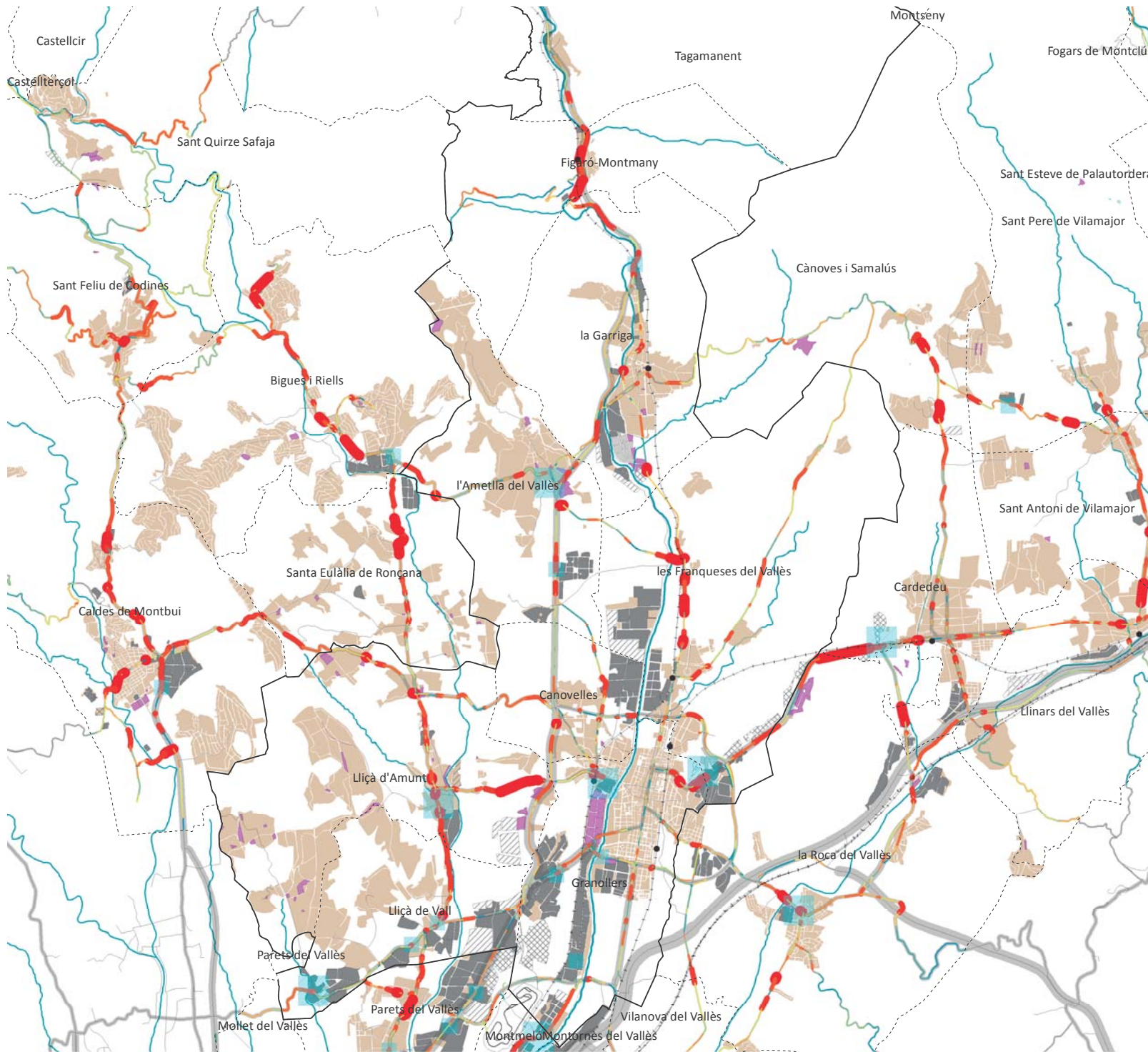
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Railway network

**DIAGNOSIS**

- Trip generation nodes





- 1 DIAGNOSIS**
- 3** PDU Sector of the C-17 between Parets and La Garriga
- 2** Diversity Nodes

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolitana Barcelona
- Urban land - Tertiary
- Industrial land - Consolidation**
- 0-25
- 25-50
- 50-75
- 75-100

**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)

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Diversity Indicator

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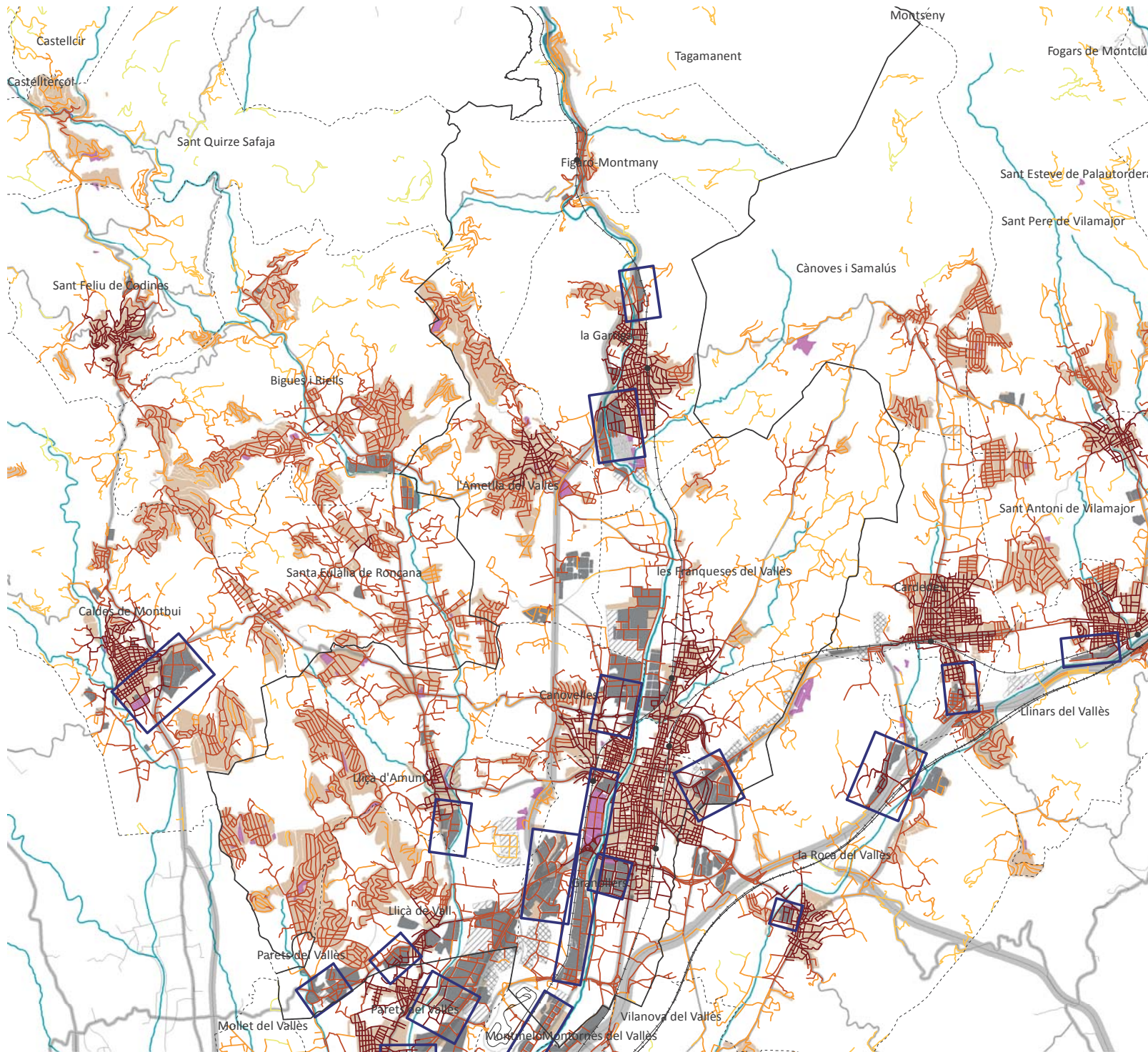
Railway network

**DIAGNOSIS**

- Diversity Nodes







- 1** DIAGNOSIS
- 3** PDU Sector of the C-17 between Parets and La Garriga
- 3** Trip generation areas

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

**Industrial land - Consolidation**

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**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)

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Trip generation indicator

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Railway network





**DIAGNOSIS**

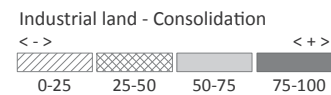
- Trip generation areas



- 1** DIAGNOSIS
- 3** PDU Sector of the C-17 between Parets and La Garriga
- 4** Diversity Areas

**BASEMAP**

-  Sector
-  Municipal boundaries
-  Urban land - Pla Territorial Metropolità Barcelona
-  Urban land - Tertiary



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



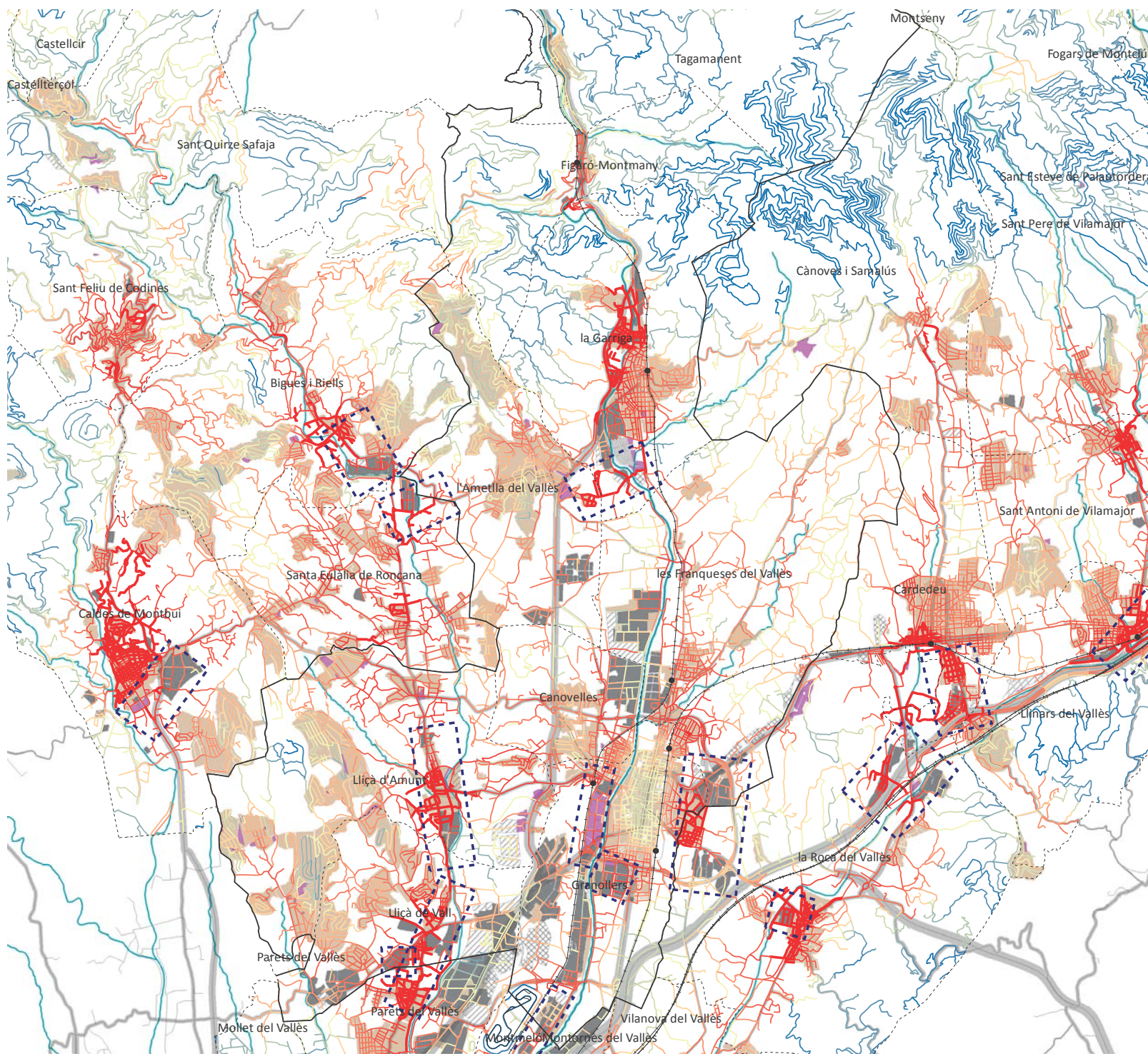
Diversity Indicator

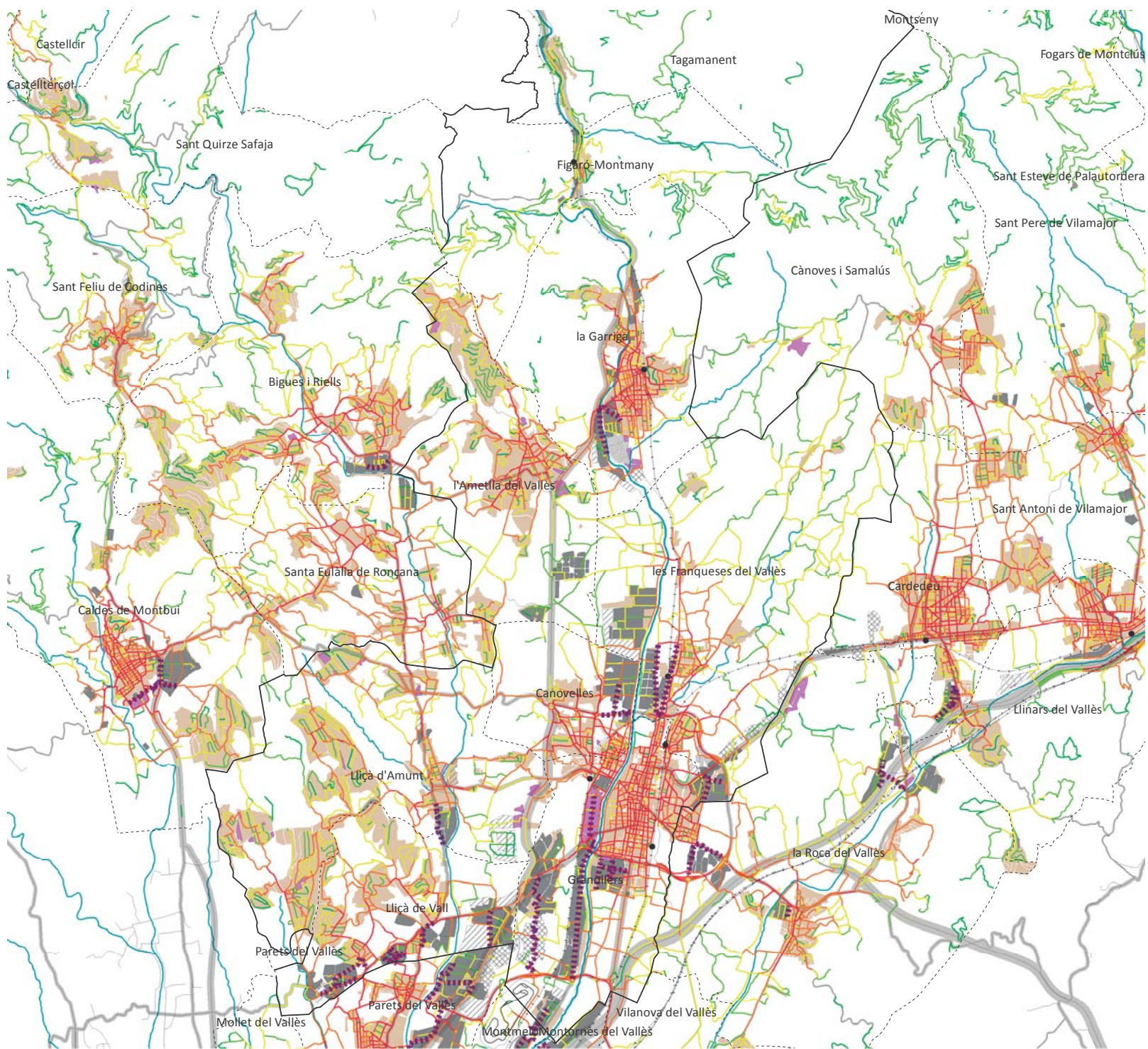


Railway network 

**DIAGNOSIS**

 Diversity Areas





- 1** DIAGNOSIS
- 3** PDU Sector of the C-17 between Parets and La Garriga
- 5** Structuring connectors

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

Industrial land - Consolidation

0-25	25-50	50-75	75-100

**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)

Betweenness centrality 2000m

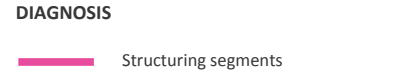
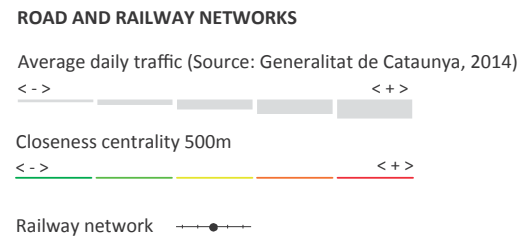
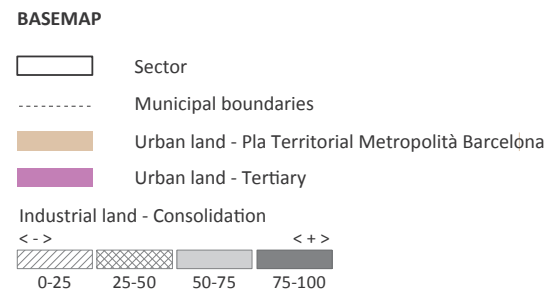
Railway network

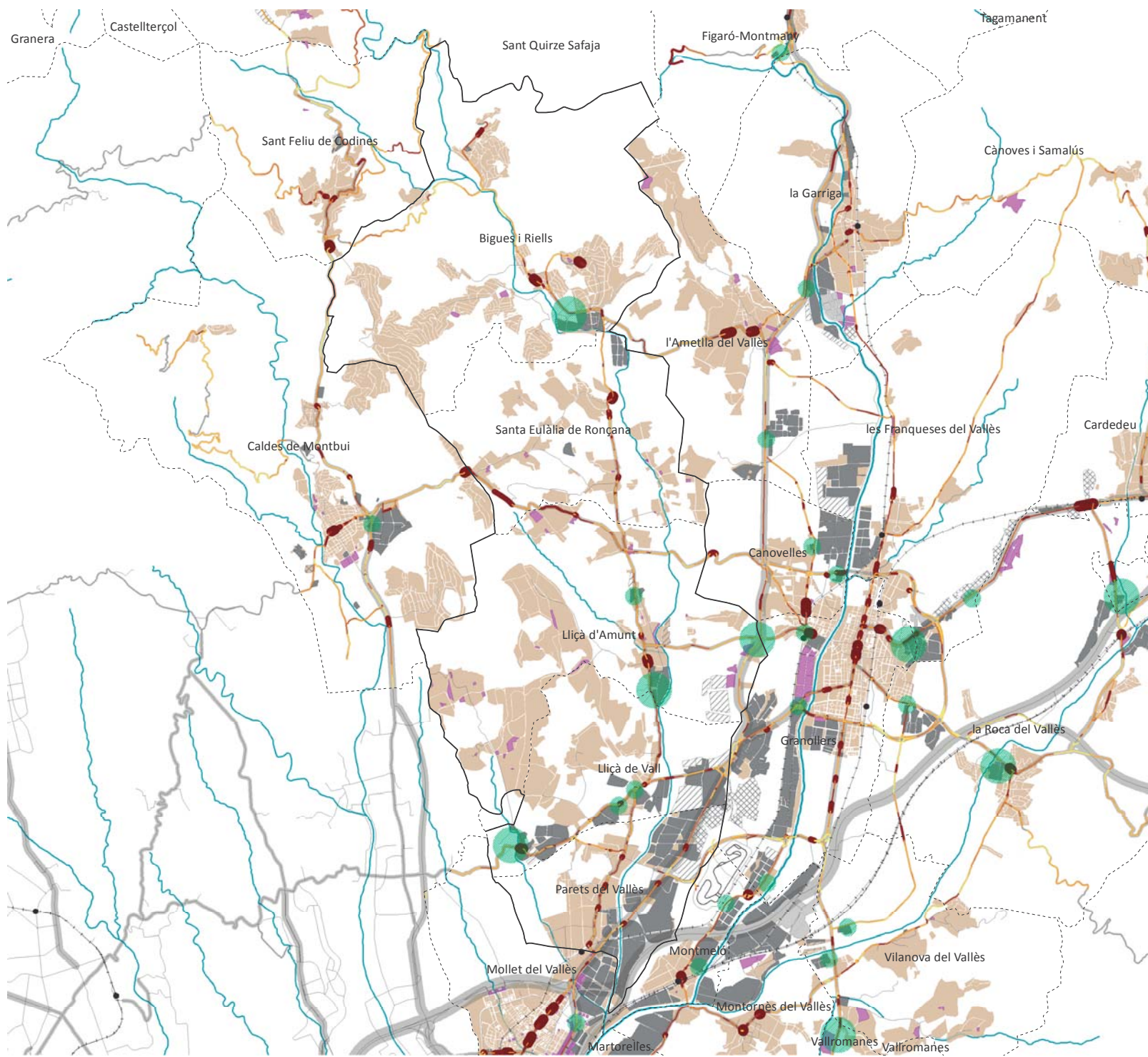
**DIAGNOSIS**

- Structuring connectors



- 1** DIAGNOSIS
- 3** PDU Sector of the C-17 between Parets and La Garriga
- 6** Structuring segments





- 1** DIAGNOSIS
- 4** PDU Sector of urban structuring of the valley of the Tenes
- 1** Trip generation nodes

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

Industrial land - Consolidation

<-> <+>

0-25 25-50 50-75 75-100

**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)

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Trip generation indicator

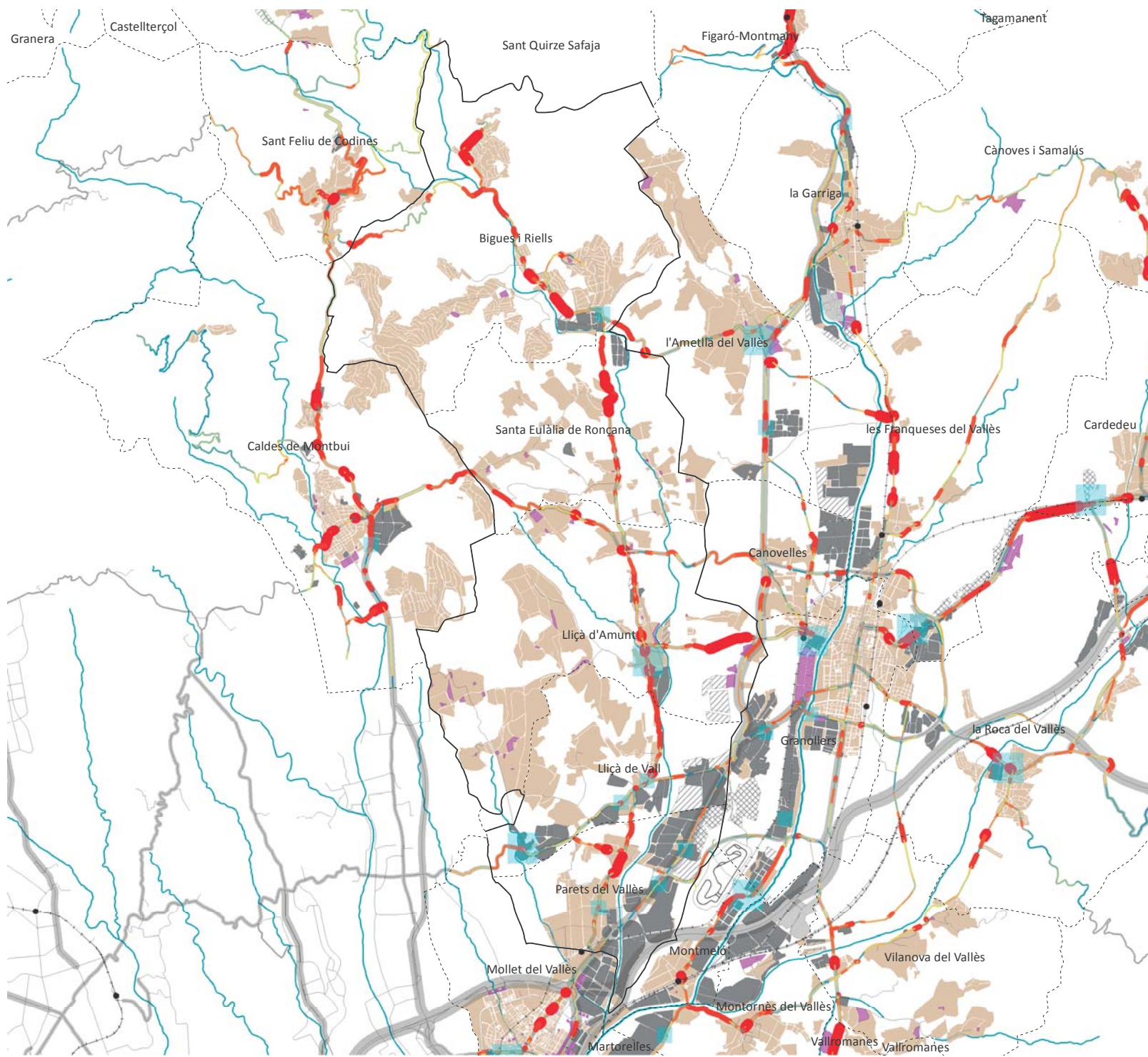
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Railway network

**DIAGNOSIS**

Trip generation nodes





- 1 DIAGNOSIS**
- 4** PDU Sector of urban structuring of the valley of the Tenes
- 2** Diversity Nodes

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

Industrial land - Consolidation

0-25	25-50	50-75	75-100

**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)

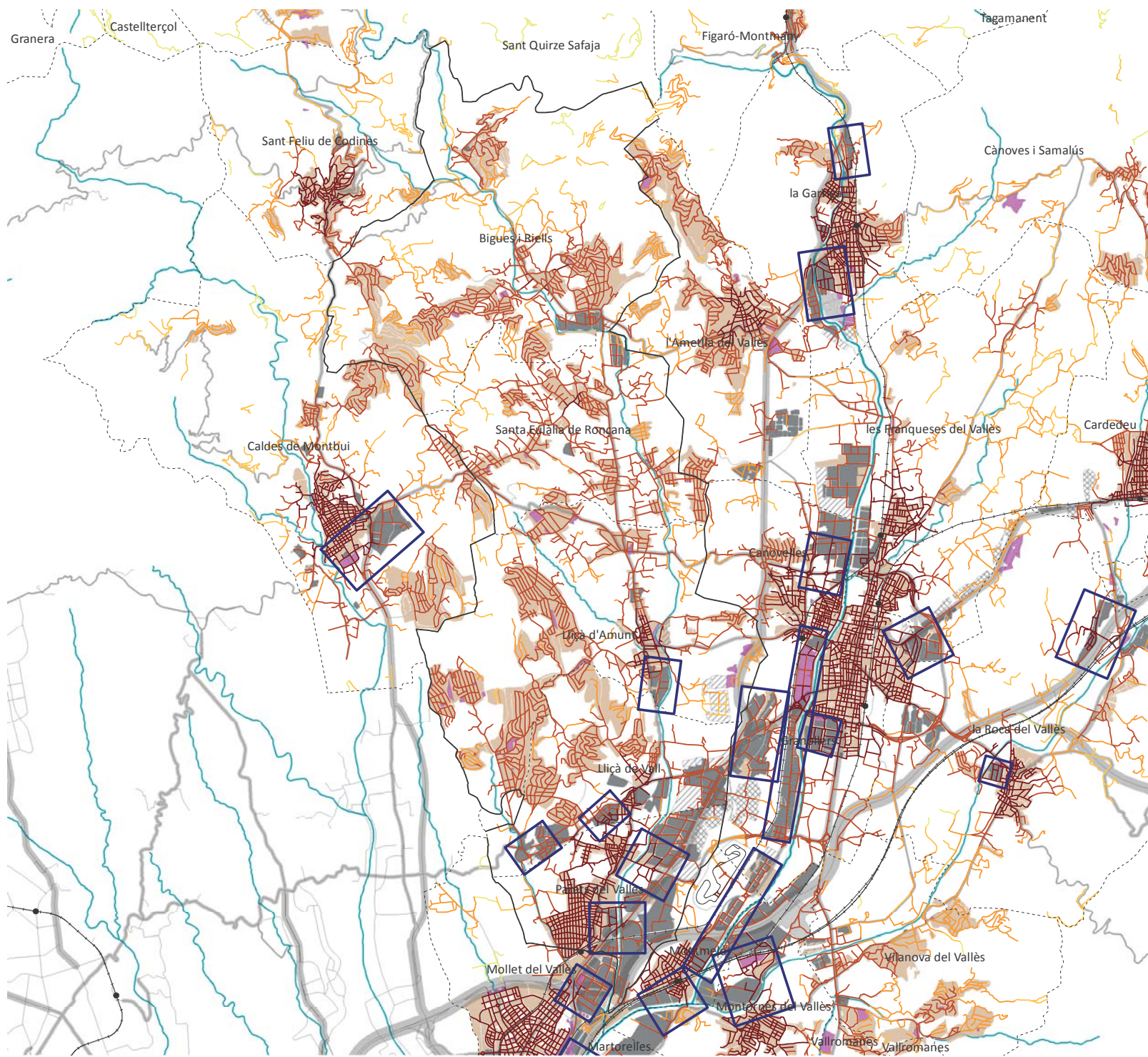
Diversity Indicator

Railway network

**DIAGNOSIS**

- Diversity Nodes





- 1** DIAGNOSIS
- 4** PDU Sector of urban structuring of the valley of the Tenes
- 3** Trip generation areas

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

**Industrial land - Consolidation**

<-> <+>

0-25    25-50    50-75    75-100

**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)

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Trip generation indicator

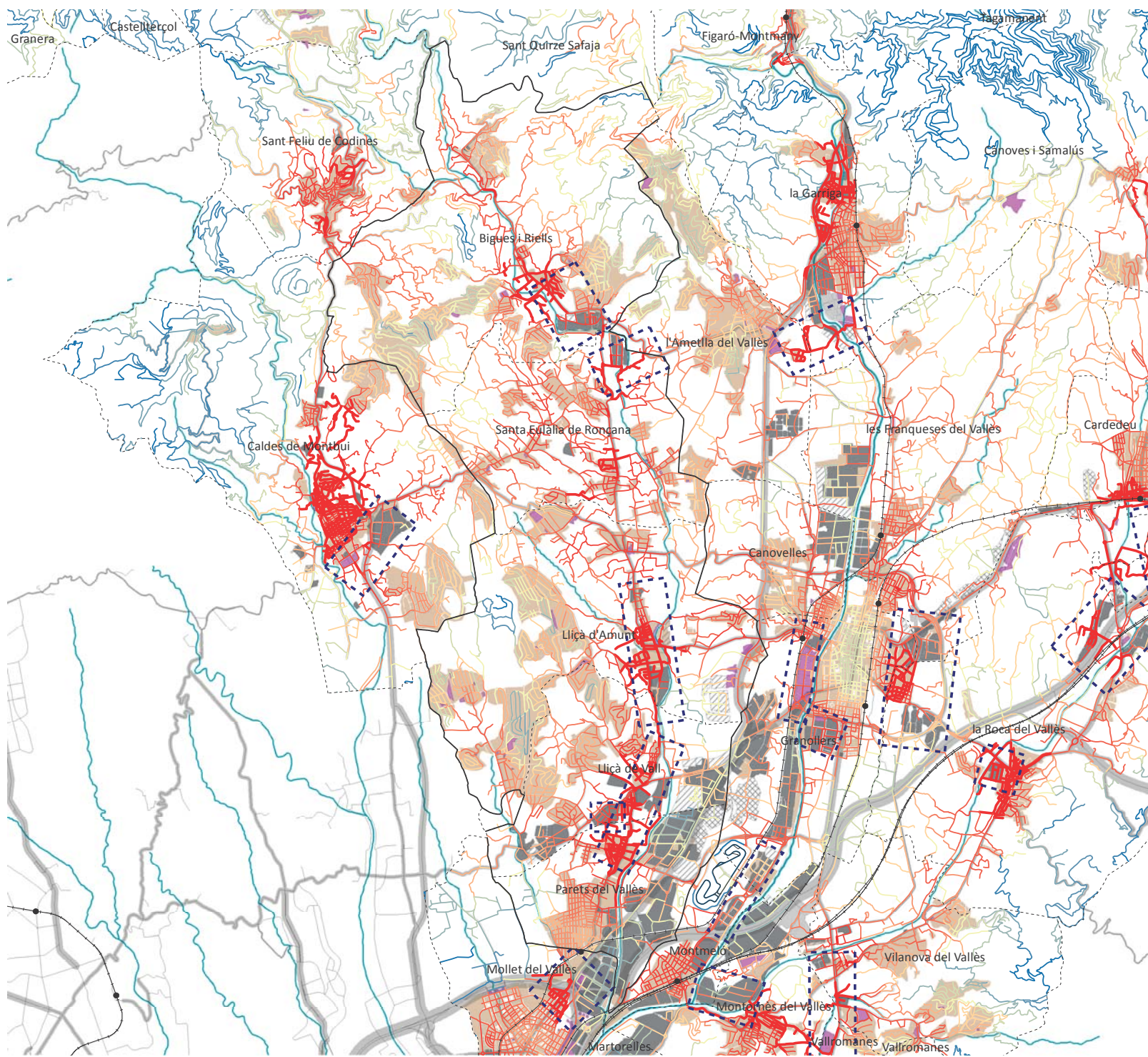
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Railway network

**DIAGNOSIS**

- Trip generation areas





**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

Industrial land - Consolidation

<-> <+>

0-25 25-50 50-75 75-100

**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)

<-> <+>

Diversity Indicator

<-> <+>

Railway network

**DIAGNOSIS**

- Diversity Areas







- 1** DIAGNOSIS
- 4** PDU Sector of urban structuring of the valley of the Tenes
- 5** Structuring connectors

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

Industrial land - Consolidation

0-25	25-50	50-75	75-100

**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)

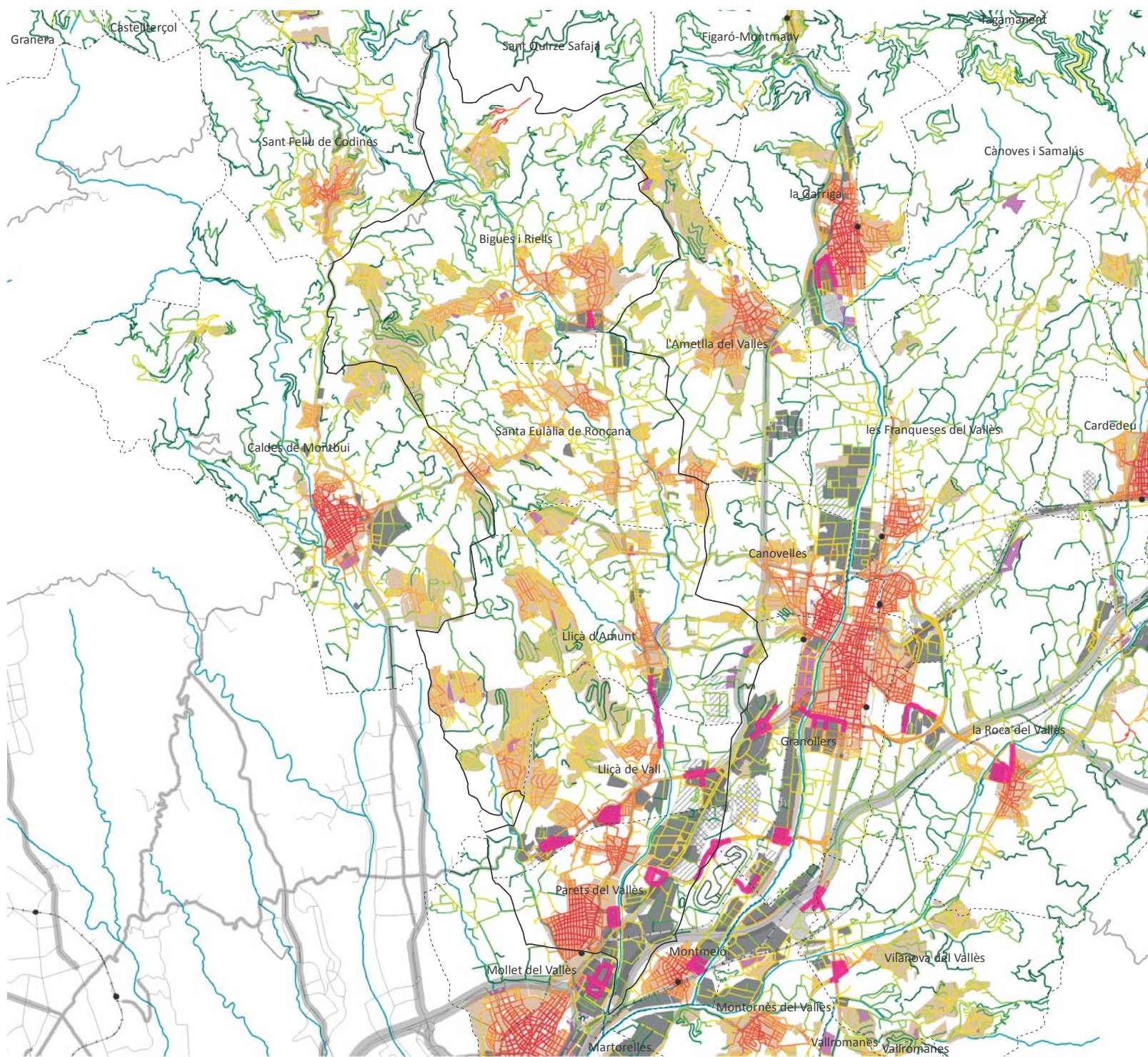
Betweenness centrality 2000m

Railway network

**DIAGNOSIS**

- Structuring connectors





- 1** DIAGNOSIS
- 4** PDU Sector of urban structuring of the valley of the Tenes
- 6** Structuring segments

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

Industrial land - Consolidation

0-25	25-50	50-75	75-100

**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)

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Closeness centrality 500m

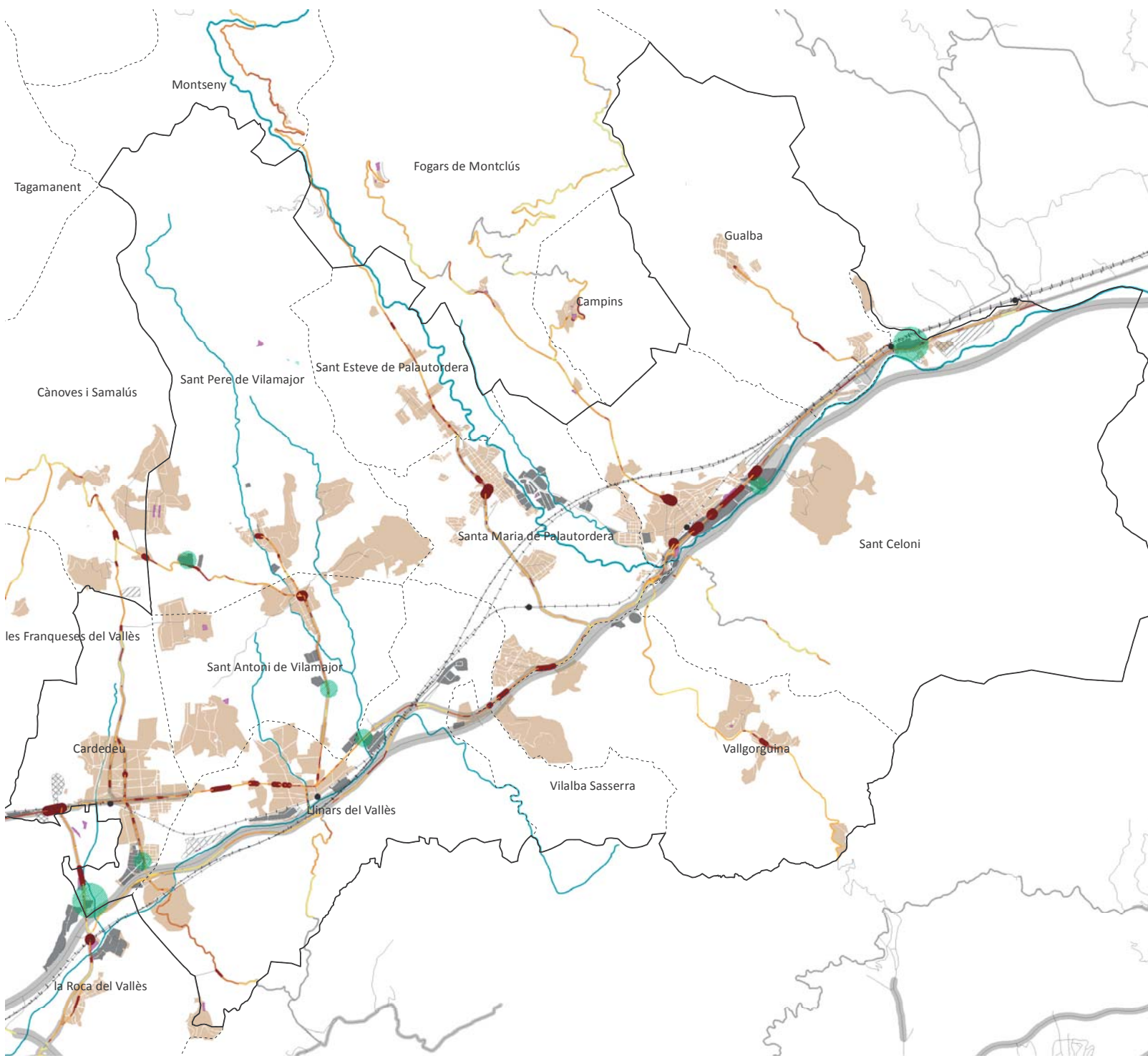
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Railway network

**DIAGNOSIS**

- Structuring segments









**1 DIAGNOSIS**

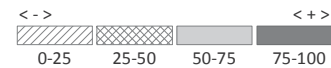
**5** PDU Sector of the Cardedeu - Sant Celoni axis

**1** Trip generation nodes

**BASEMAP**

-  Sector
-  Municipal boundaries
-  Urban land - Pla Territorial Metropolità Barcelona
-  Urban land - Tertiary

Industrial land - Consolidation



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)




Trip generation indicator

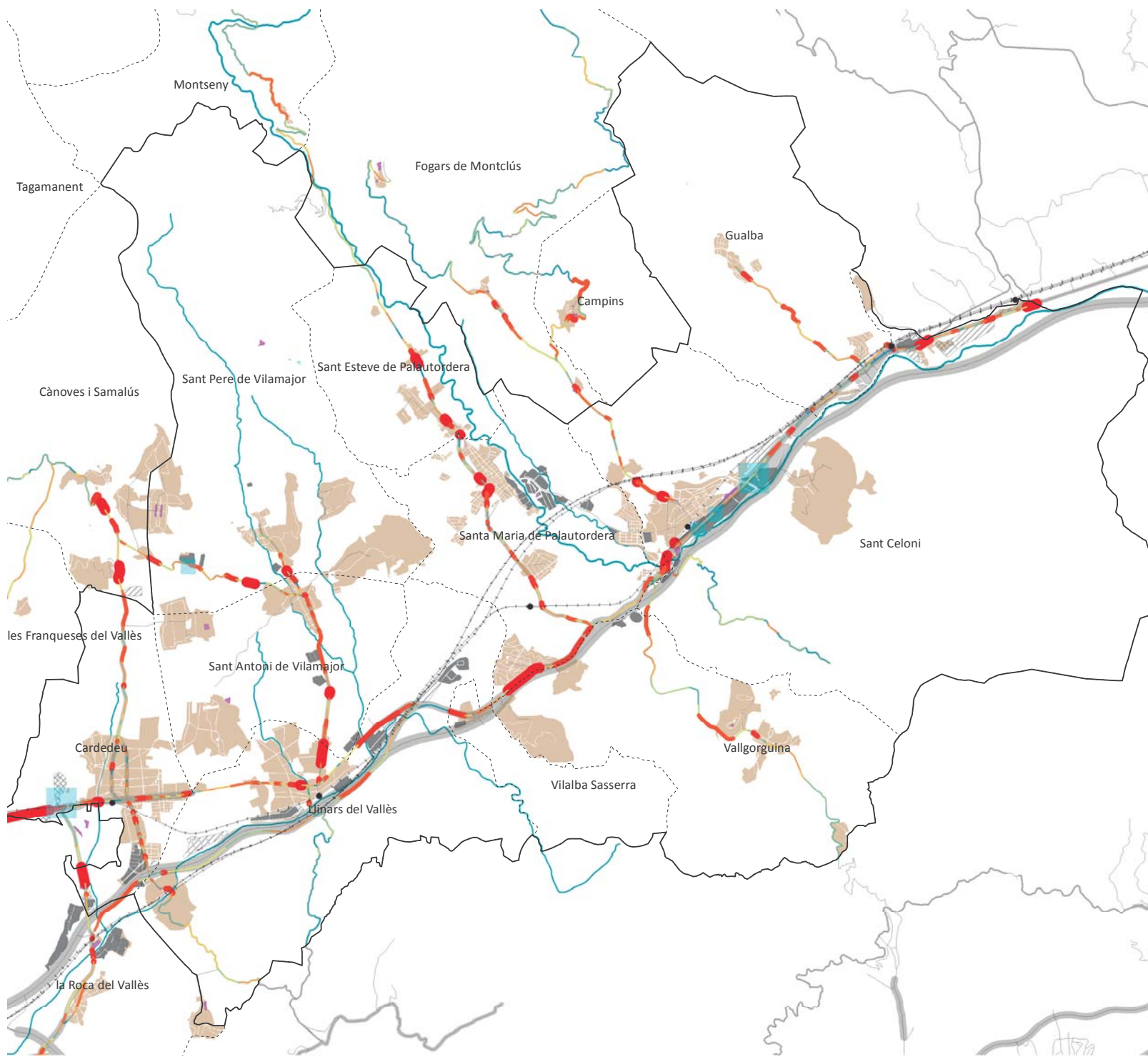


Railway network 

**DIAGNOSIS**

 Trip generation nodes



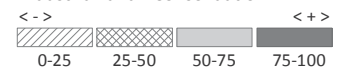


- 1 DIAGNOSIS**
- 5** PDU Sector of the Cardedeu - Sant Celoni axis
- 2** Diversity Nodes

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

Industrial land - Consolidation



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



Diversity Indicator



Railway network

**DIAGNOSIS**





- Diversity Nodes



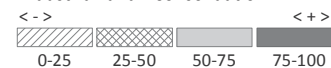
**1 DIAGNOSIS**

- 5** PDU Sector of the Cardedeu - Sant Celoni axis
- 3** Trip generation areas

**BASEMAP**

-  Sector
-  Municipal boundaries
-  Urban land - Pla Territorial Metropolità Barcelona
-  Urban land - Tertiary

**Industrial land - Consolidation**



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



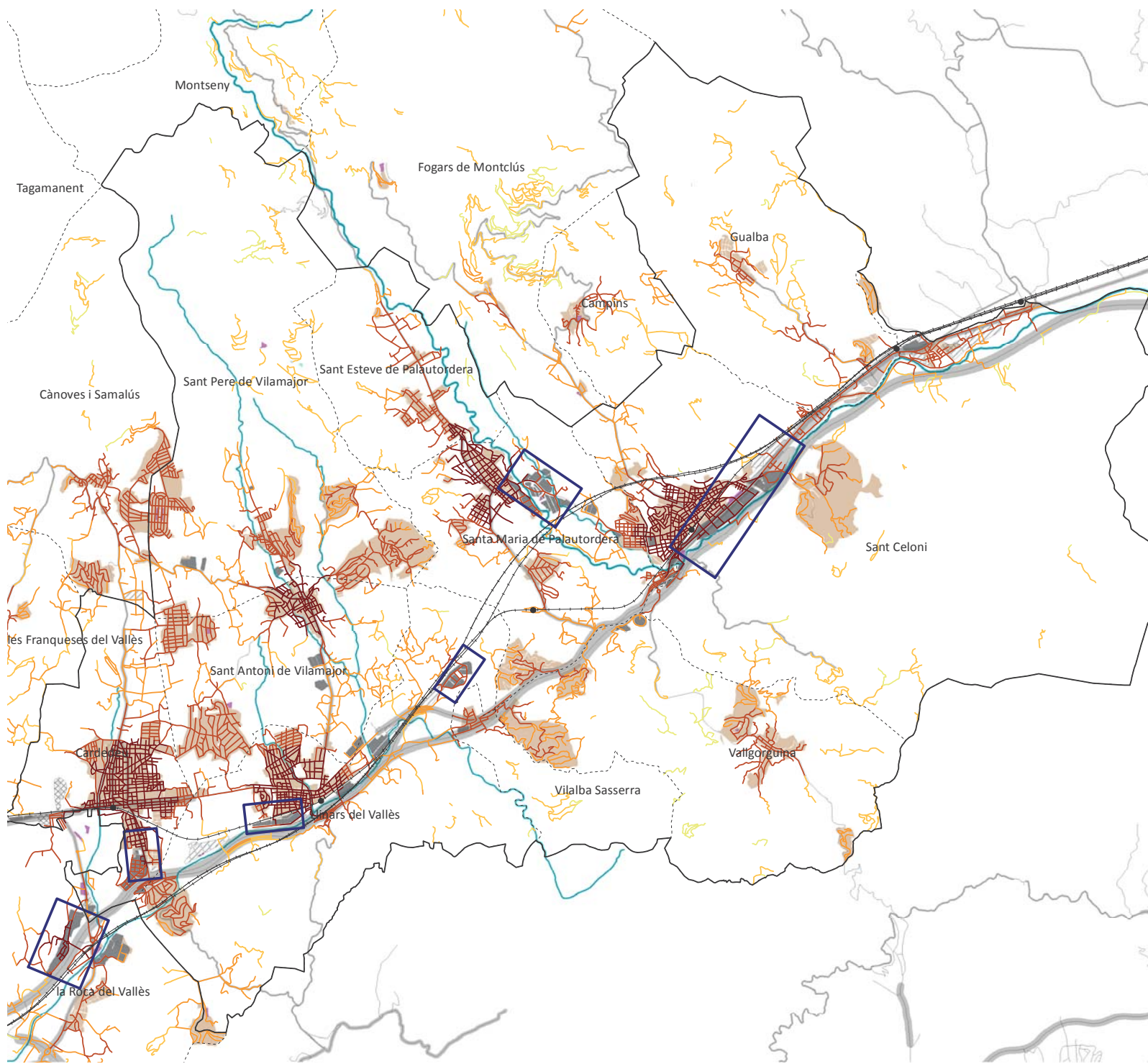
Trip generation indicator



Railway network 





**DIAGNOSIS**

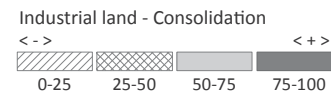
-  Trip generation areas



- 1** DIAGNOSIS
- 5** PDU Sector of the Cardedeu - Sant Celoni axis
- 4** Diversity Areas

**BASEMAP**

-  Sector
-  Municipal boundaries
-  Urban land - Pla Territorial Metropolità Barcelona
-  Urban land - Tertiary



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



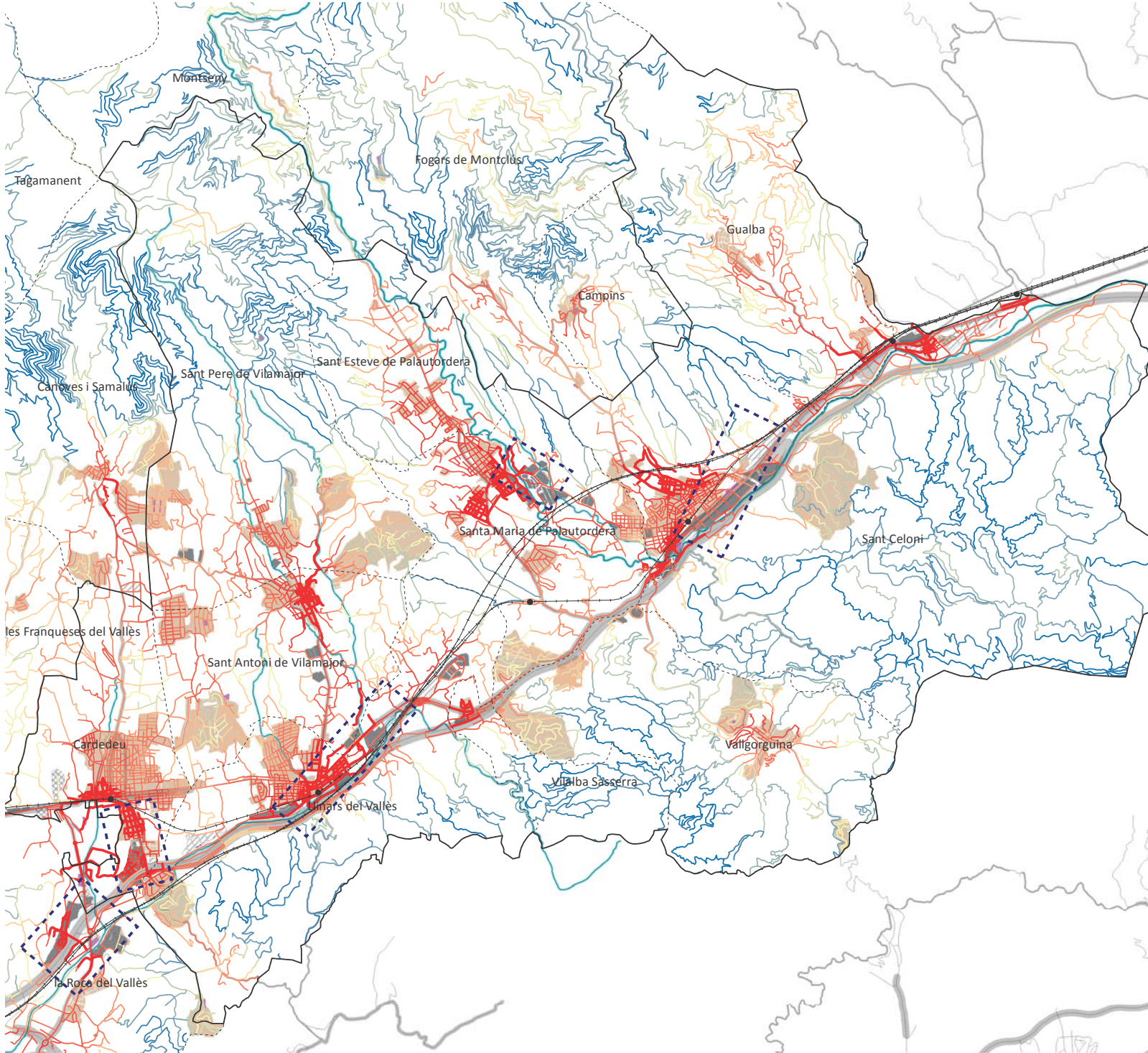
Diversity Indicator



Railway network 

**DIAGNOSIS**





 Diversity Areas



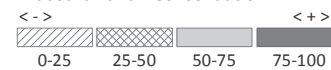
**1 DIAGNOSIS**

- 5** PDU Sector of the Cardedeu - Sant Celoni axis
- 5** Structuring connectors

**BASEMAP**

-  Sector
-  Municipal boundaries
-  Urban land - Pla Territorial Metropolità Barcelona
-  Urban land - Tertiary

Industrial land - Consolidation



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



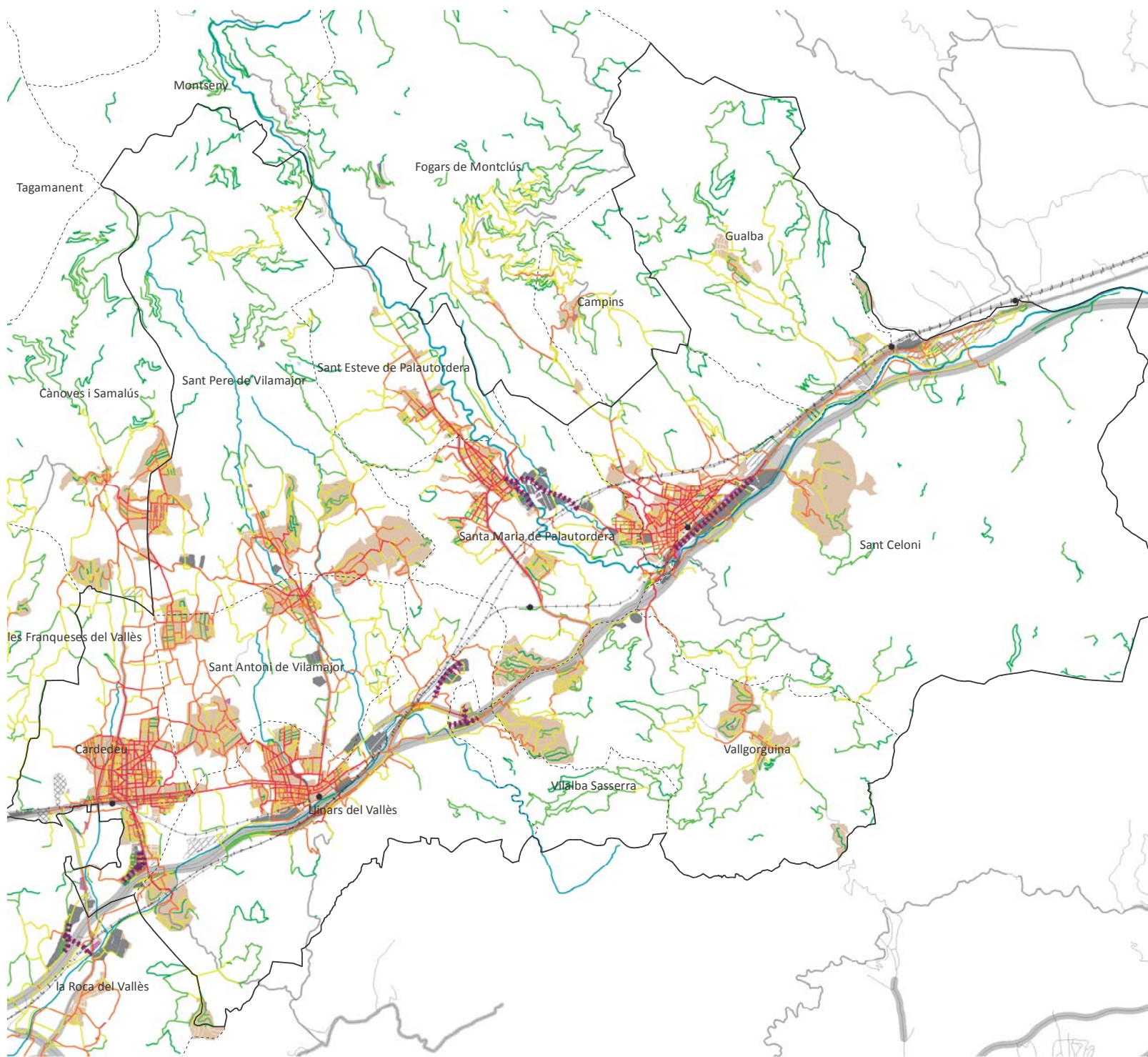
Betweenness centrality 2000m



Railway network 





**DIAGNOSIS**

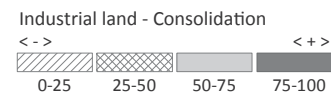
-  Structuring connectors



- 1** DIAGNOSIS
- 5** PDU Sector of the Cardedeu - Sant Celoni axis
- 6** Structuring segments

**BASEMAP**

-  Sector
-  Municipal boundaries
-  Urban land - Pla Territorial Metropolità Barcelona
-  Urban land - Tertiary



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



Closeness centrality 500m

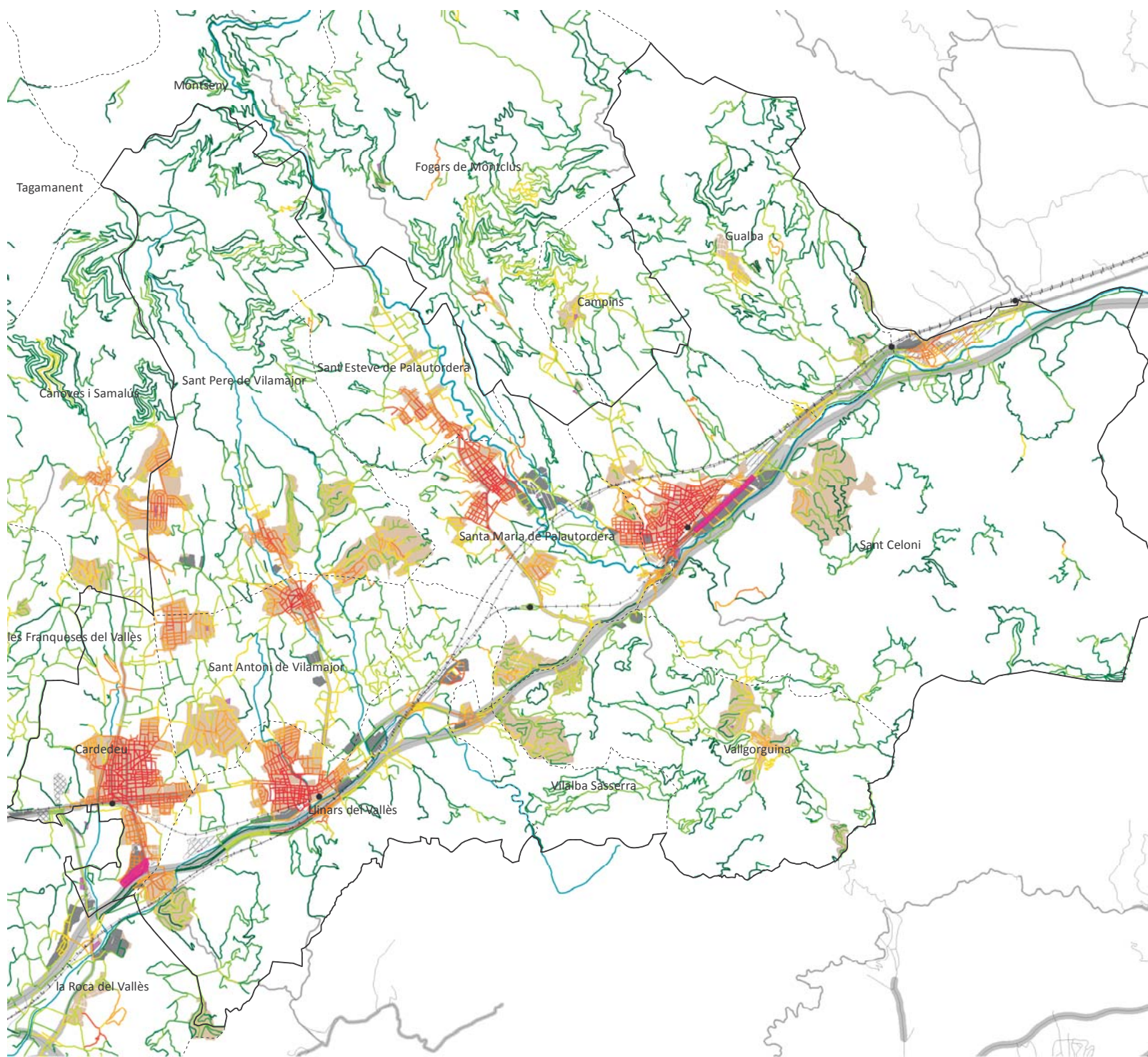


Railway network

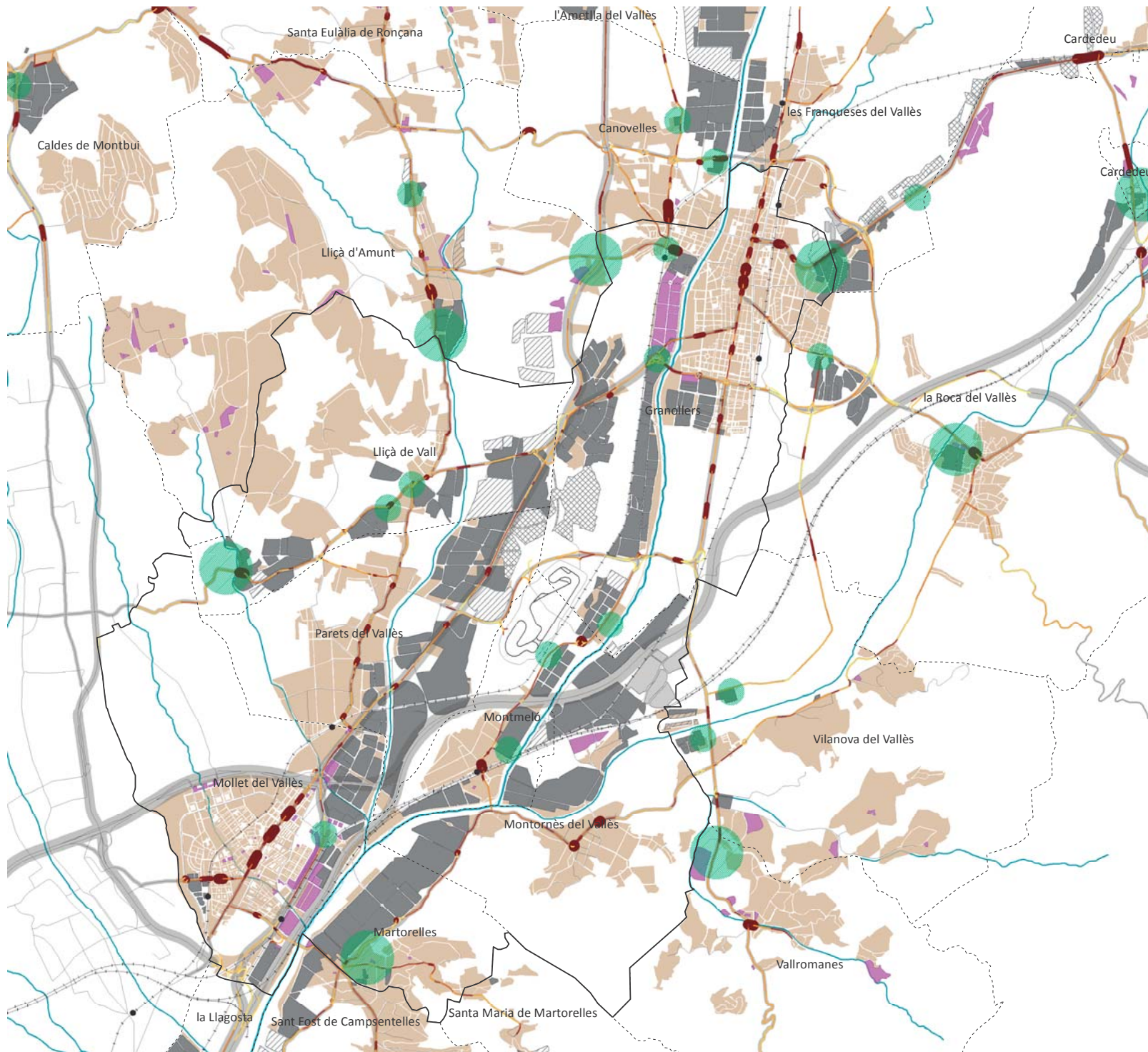


**DIAGNOSIS**

-  Structuring segments











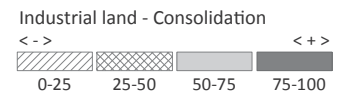
**1 DIAGNOSIS**

**6** PDU of the Circuit of Montmeló

**1** Trip generation nodes

**BASEMAP**

-  Sector
-  Municipal boundaries
-  Urban land - Pla Territorial Metropolità Barcelona
-  Urban land - Tertiary




**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)




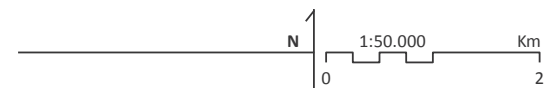
Trip generation indicator

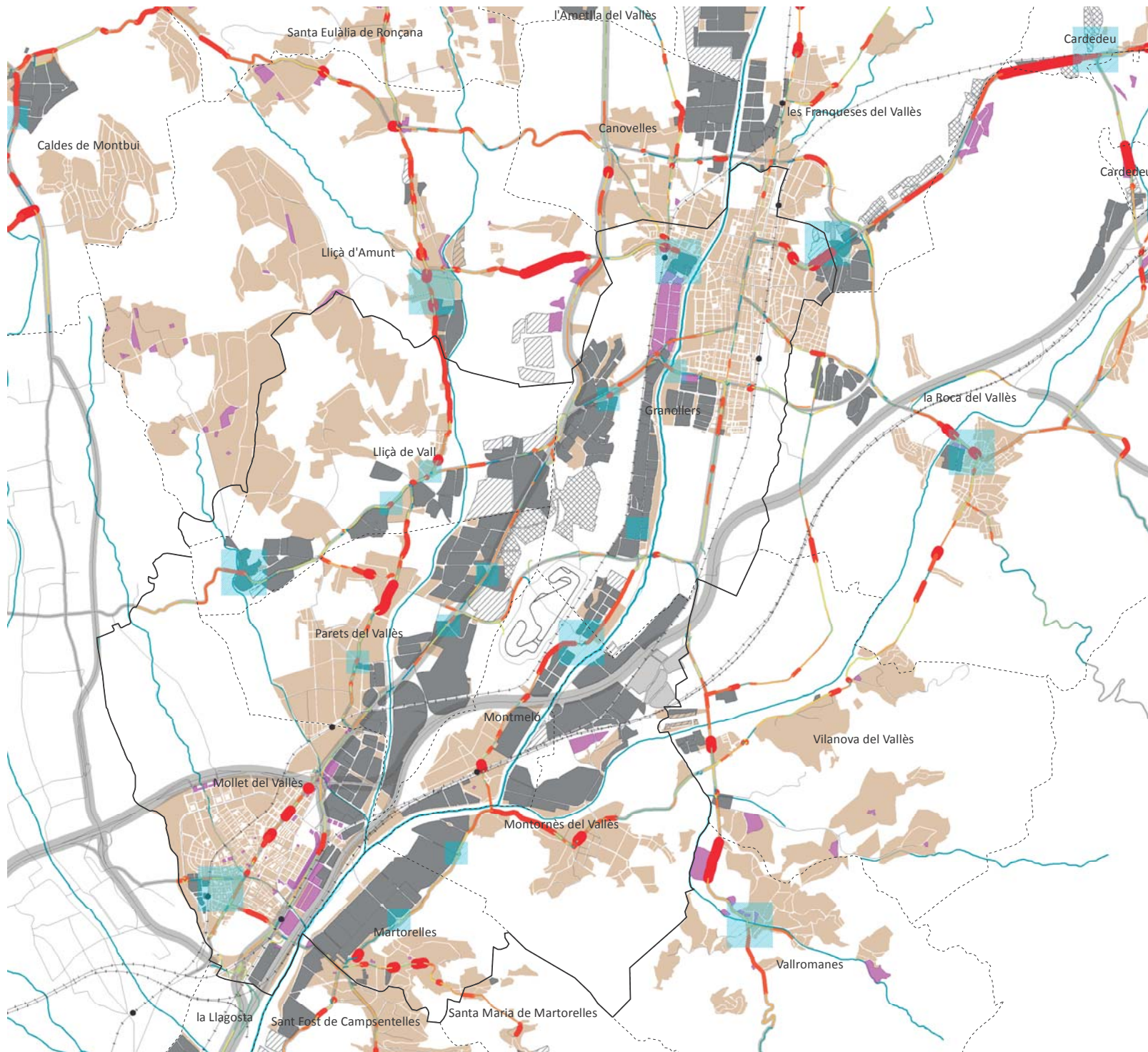


Railway network 

**DIAGNOSIS**

 Trip generation nodes









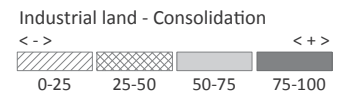
**1 DIAGNOSIS**

**6** PDU of the Circuit of Montmeló

**2** Diversity Nodes

**BASEMAP**

-  Sector
-  Municipal boundaries
-  Urban land - Pla Territorial Metropolità Barcelona
-  Urban land - Tertiary




**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)




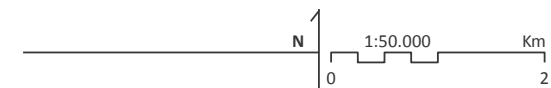
Diversity Indicator

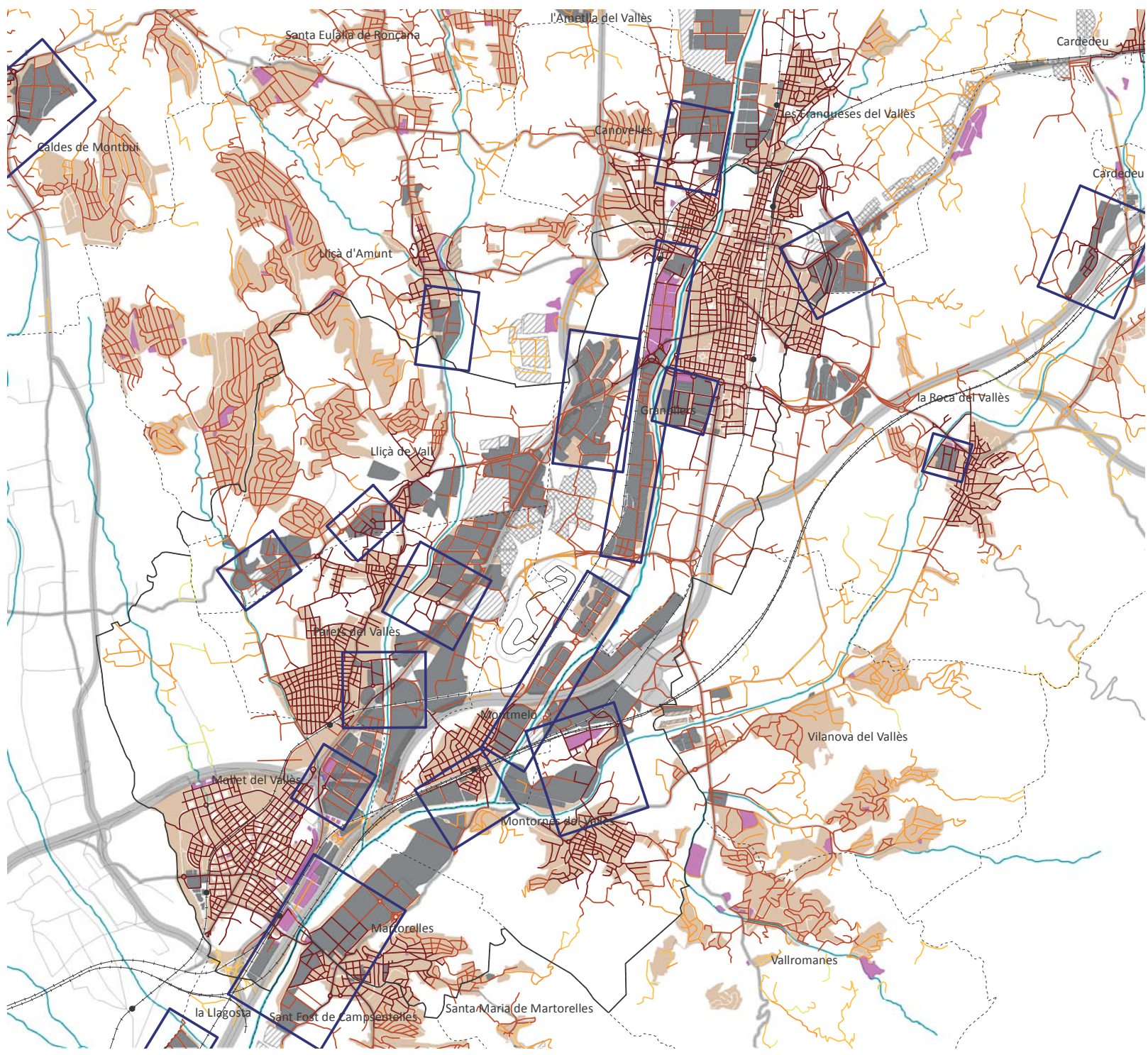


Railway network 

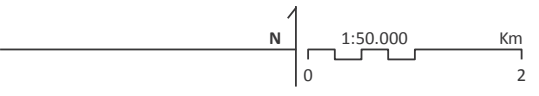
**DIAGNOSIS**

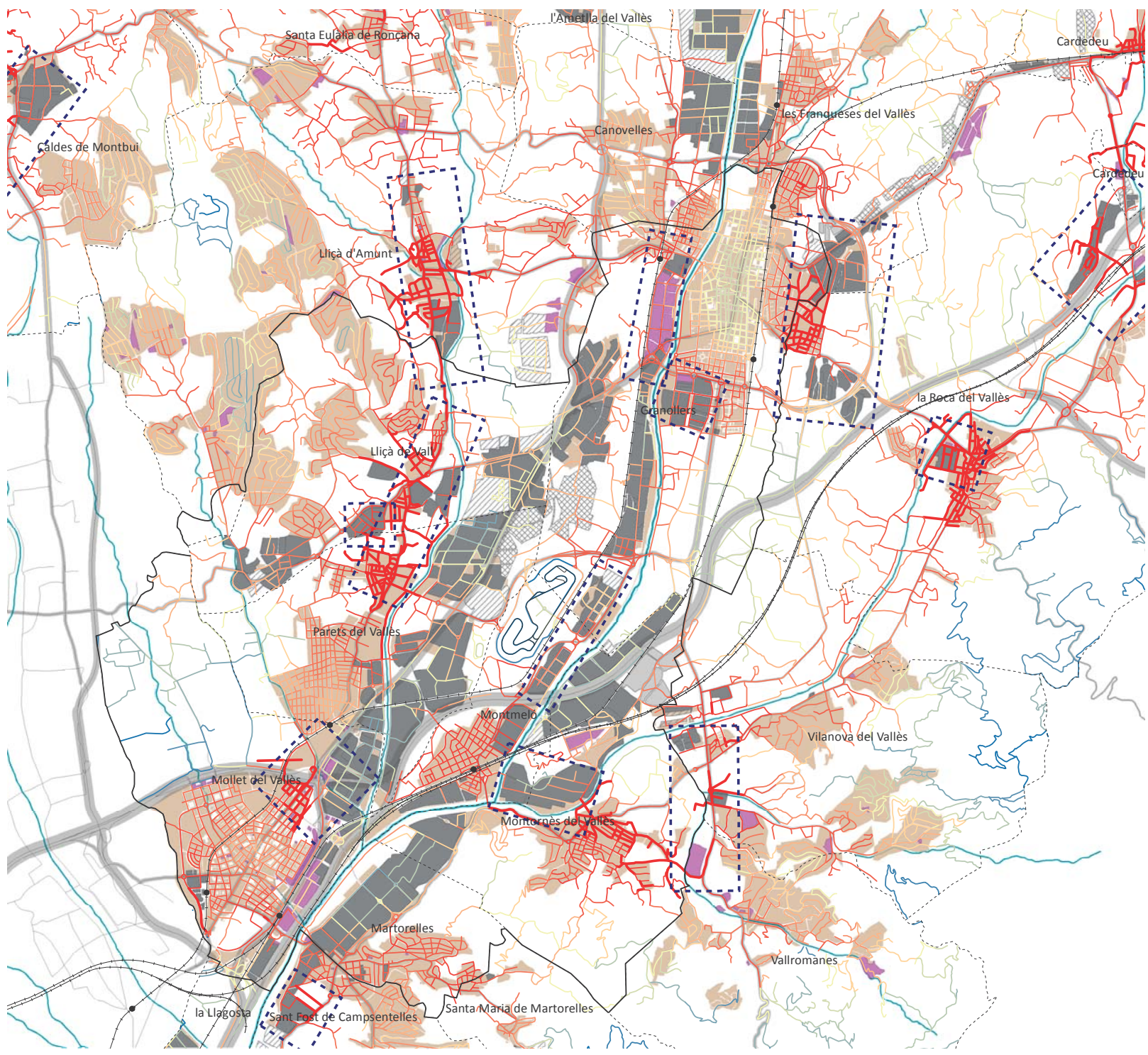
 Diversity Nodes





- 1 DIAGNOSIS**
  - 6** PDU of the Circuit of Montmeló
  - 3** Trip generation areas
- BASEMAP**
- Sector
  - Municipal boundaries
  - Urban land - Pla Territorial Metropolità Barcelona
  - Urban land - Tertiary
- Industrial land - Consolidation**
- |       |        |
|-------|--------|
| <->   | <+>    |
|       |        |
| 0-25  | 25-50  |
|       |        |
| 50-75 | 75-100 |
- ROAD AND RAILWAY NETWORKS**
- Average daily traffic (Source: Generalitat de Catalunya, 2014)
- <->
- Trip generation indicator
- <->
- Railway network
- DIAGNOSIS**
- Trip generation areas





- 1** DIAGNOSIS
- 6** PDU of the Circuit of Montmeló
- 4** Diversity Areas

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

Industrial land - Consolidation

0-25	25-50	50-75	75-100

**ROAD AND RAILWAY NETWORKS**

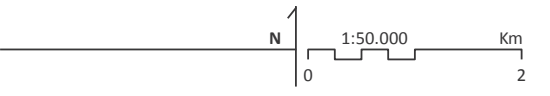
Average daily traffic (Source: Generalitat de Catalunya, 2014)

Diversity Indicator

Railway network

**DIAGNOSIS**





- Diversity Areas







**1 DIAGNOSIS**

- 6** PDU of the Circuit of Montmeló
- 5** Structuring connectors

**BASEMAP**


-  Sector
-  Municipal boundaries
-  Urban land - Pla Territorial Metropolità Barcelona
-  Urban land - Tertiary

Industrial land - Consolidation

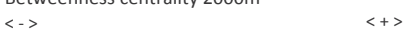
			
0-25	25-50	50-75	75-100


**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)


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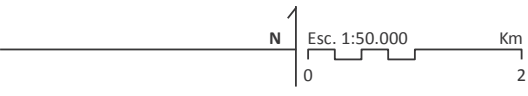
Betweenness centrality 2000m

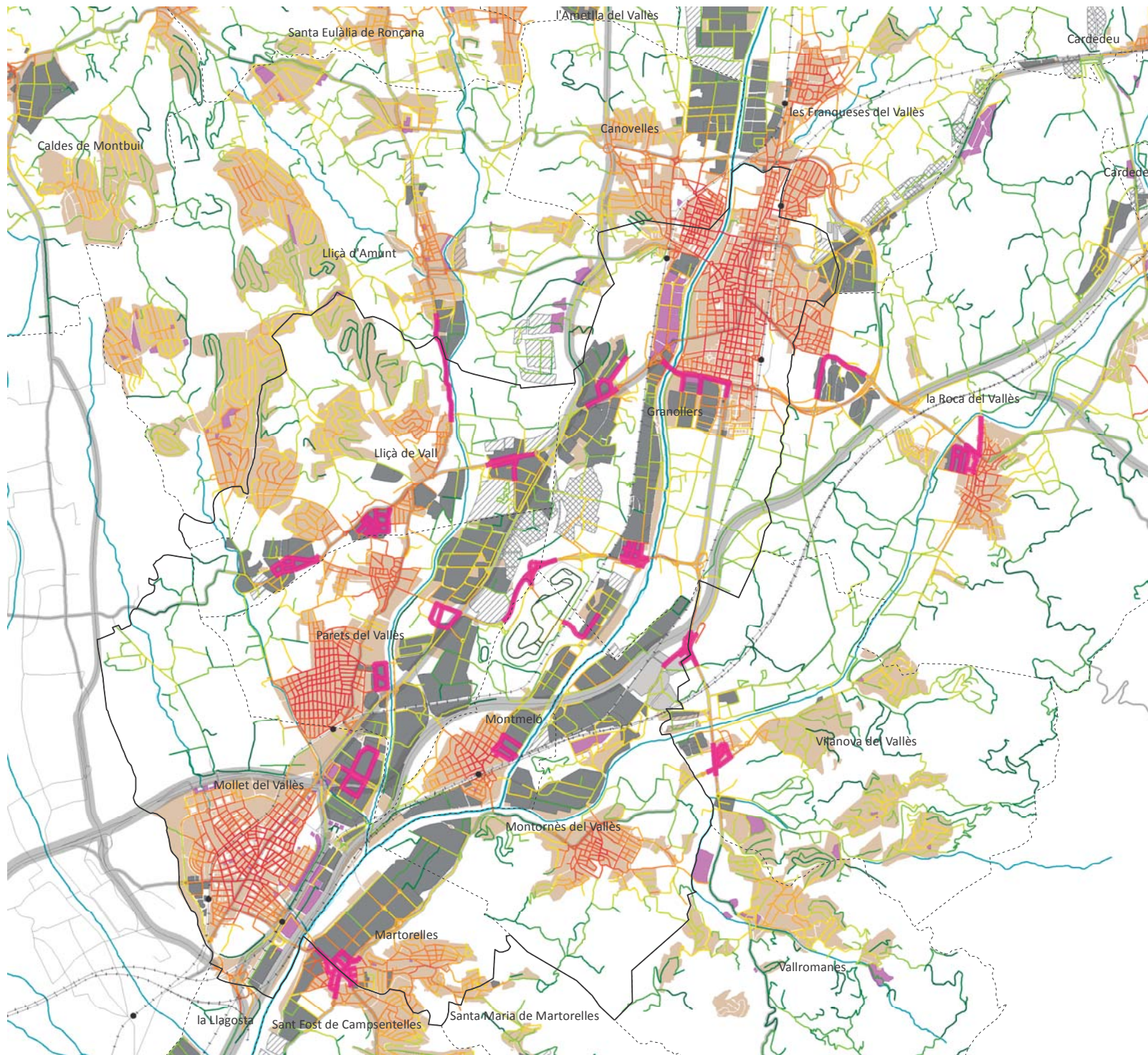
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Railway network 

**DIAGNOSIS**

-  Structuring connectors





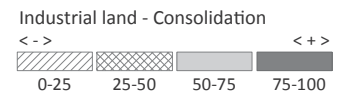
**1 DIAGNOSIS**

**6** PDU of the Circuit of Montmeló

**6** Structuring segments

**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



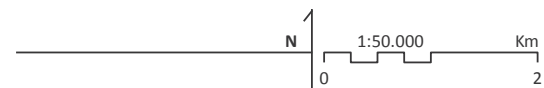
Closeness centrality 500m



Railway network

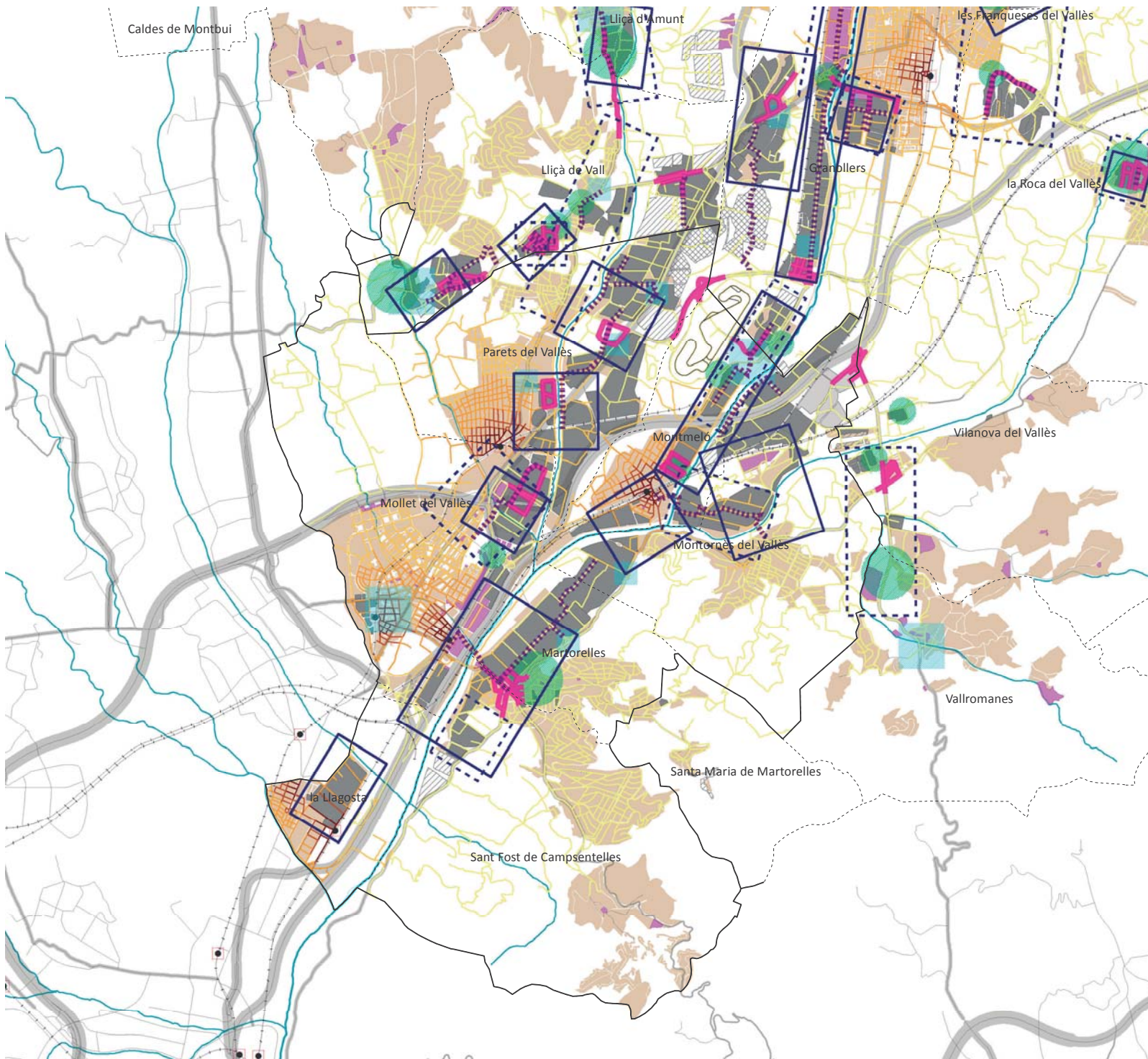
**DIAGNOSIS**

Structuring segments



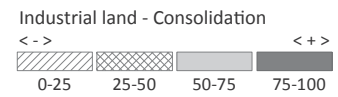
**2 DIAGNOSIS - SYNTHESIS**

**1 PDU Sector of the Baix Vallès area around Mollet**



**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



Distance to the nearest railway station (km)



Railway network

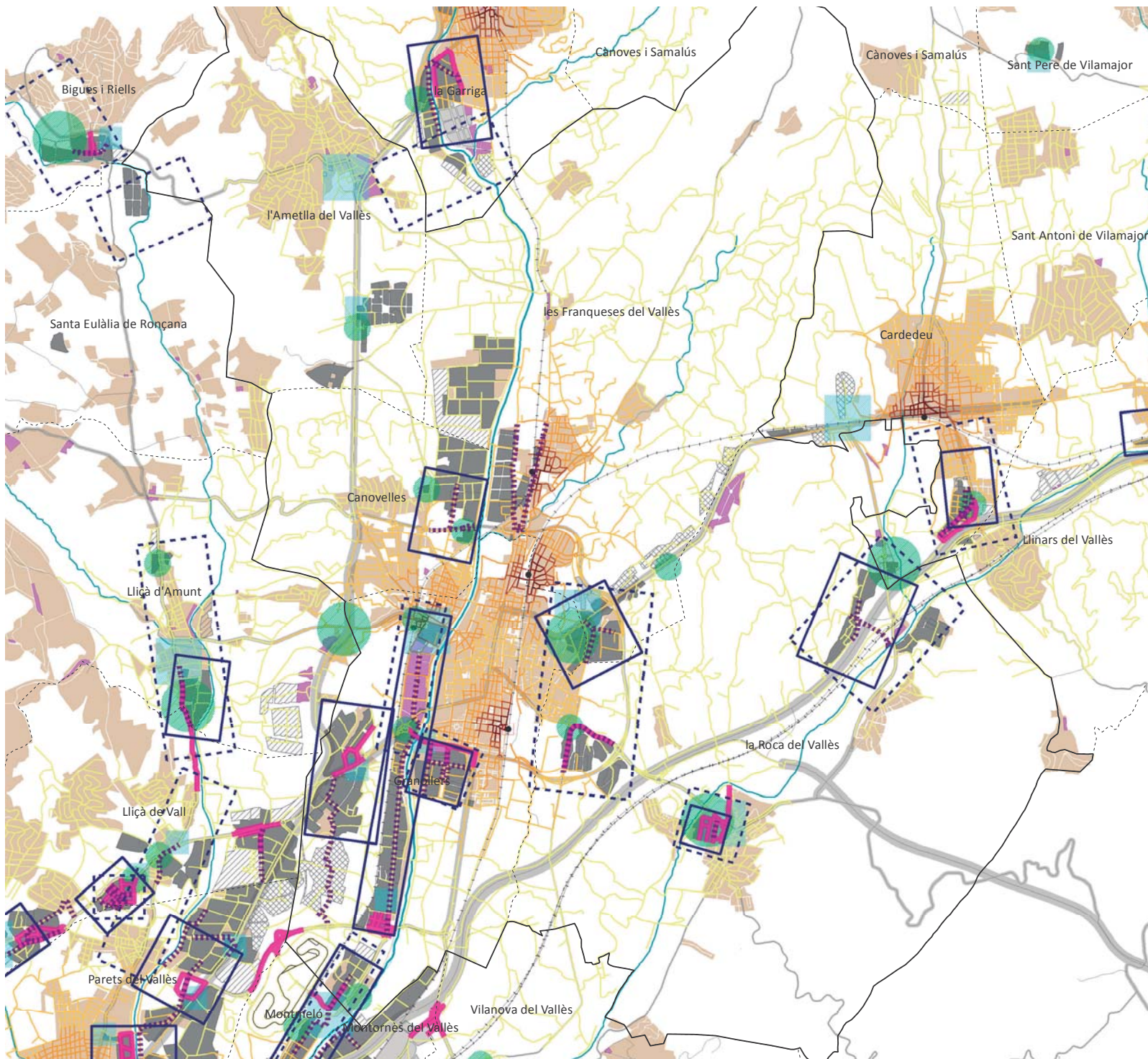
**DIAGNOSIS**

- Trip generation nodes
- Diversity nodes
- Trip generation areas
- Diversity nodes areas
- Structuring connectors
- Structuring segments



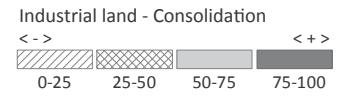
**2 DIAGNOSIS - SYNTHESIS**

**2 PDU Sector of the Baix Congost around Granollers**



**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



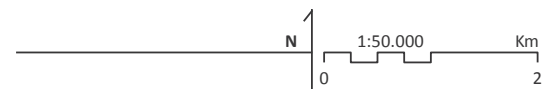
Distance to the nearest railway station (km)



Railway network

**DIAGNOSIS**

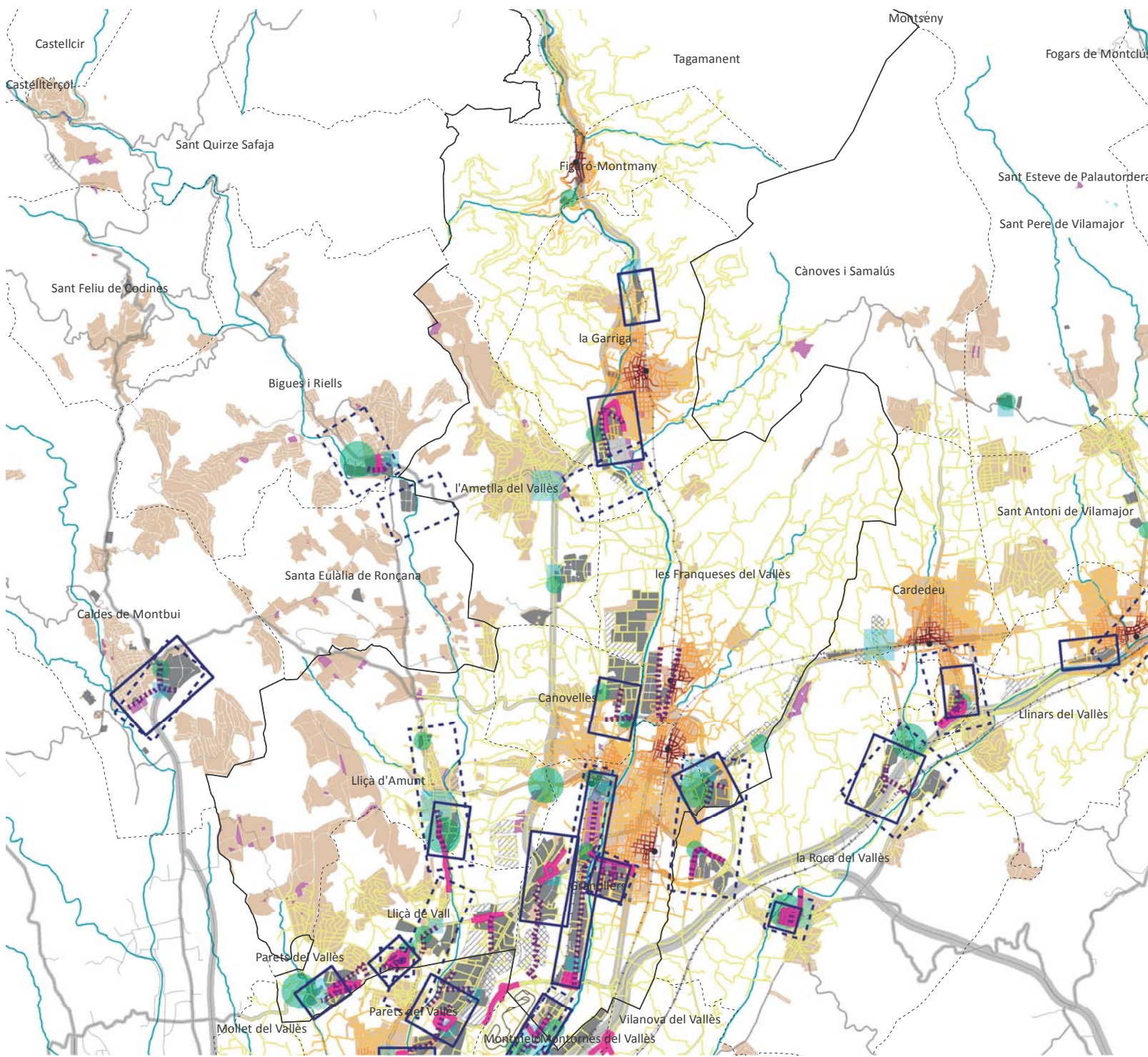
- Trip generation nodes
- Diversity nodes
- Trip generation areas
- Diversity nodes areas
- Structuring connectors
- Structuring segments





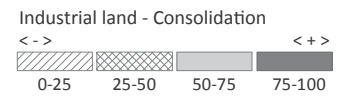
**2 DIAGNOSIS - SYNTHESIS**

**3 PDU Sector of the C-17 between Parets and La Garriga**



**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



Distance to the nearest railway station (km)



Railway network

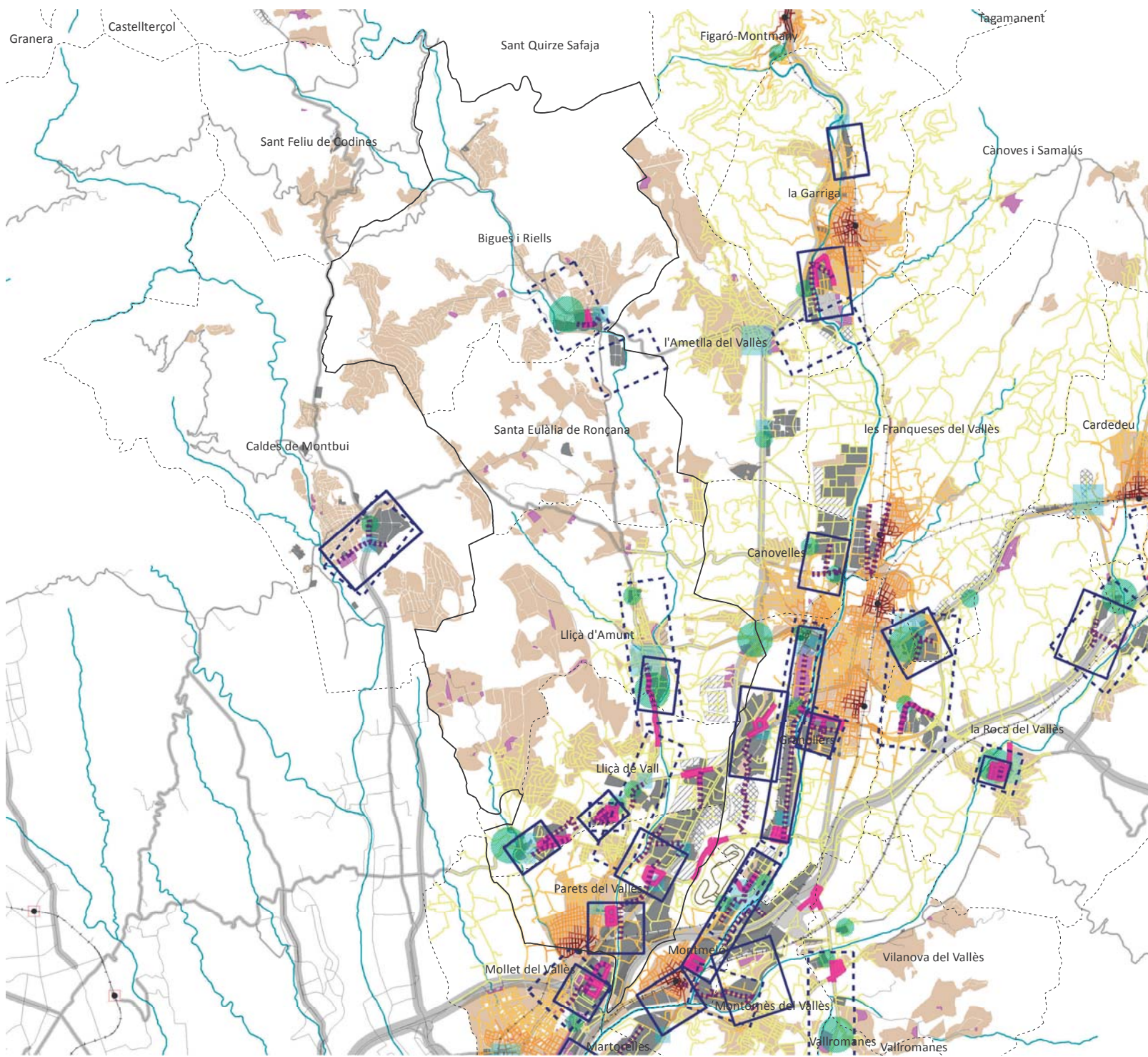
**DIAGNOSIS**

- Trip generation nodes
- Diversity nodes
- Trip generation areas
- Diversity nodes areas
- Structuring connectors
- Structuring segments



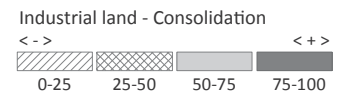
**2 DIAGNOSIS - SYNTHESIS**

**4 PDU Sector of urban structuring of the valley of the Tenes**



**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



Distance to the nearest railway station (km)



Railway network

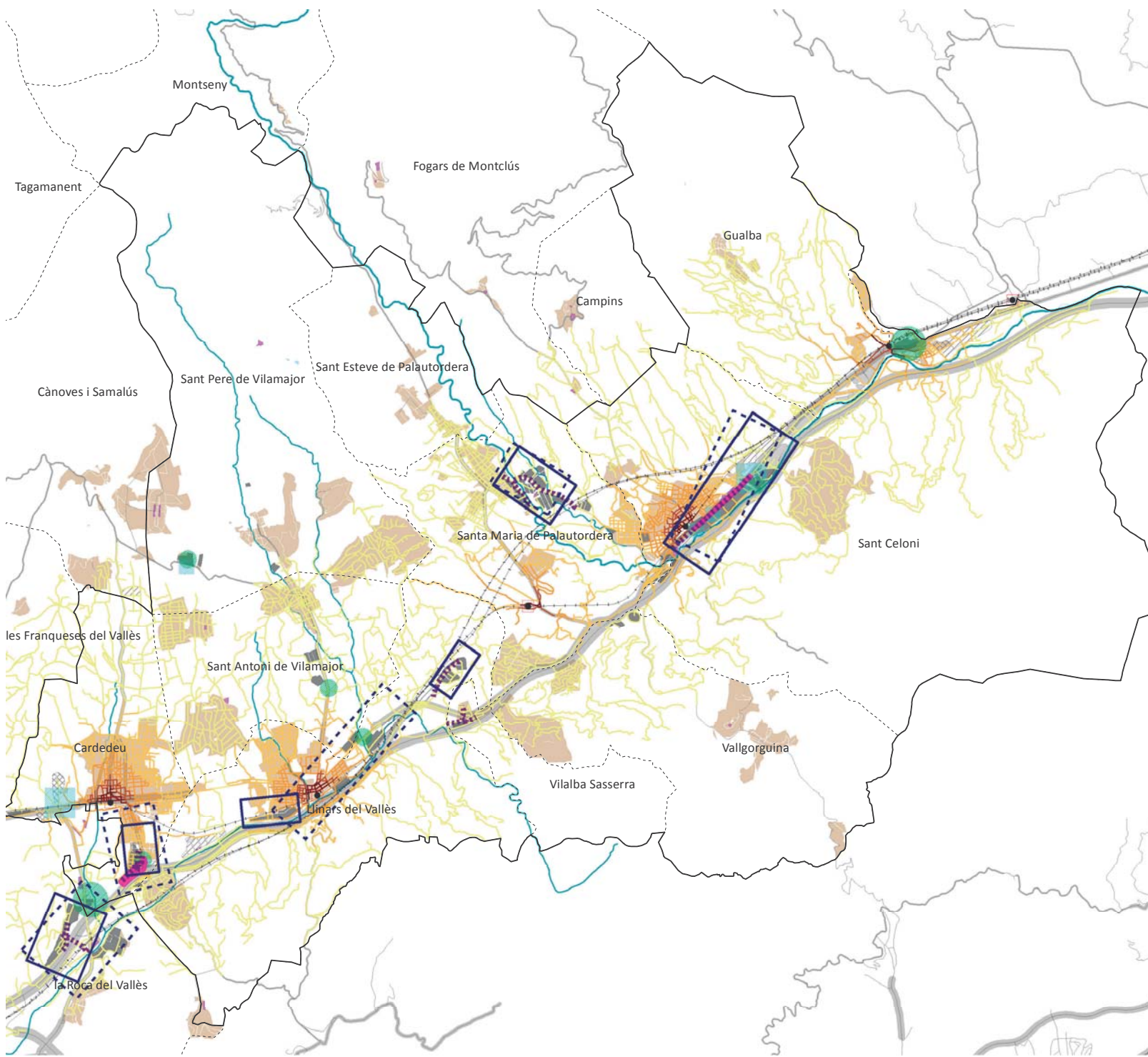
**DIAGNOSIS**

- Trip generation nodes
- Diversity nodes
- Trip generation areas
- Diversity nodes areas
- Structuring connectors
- Structuring segments



**2** DIAGNOSIS - SYNTHESIS

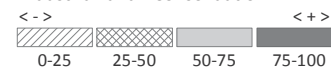
**5** PDU Sector of the Cardedeu - Sant Celoni axis



**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

Industrial land - Consolidation

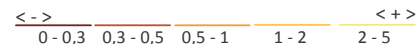


**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



Distance to the nearest railway station (km)



Railway network



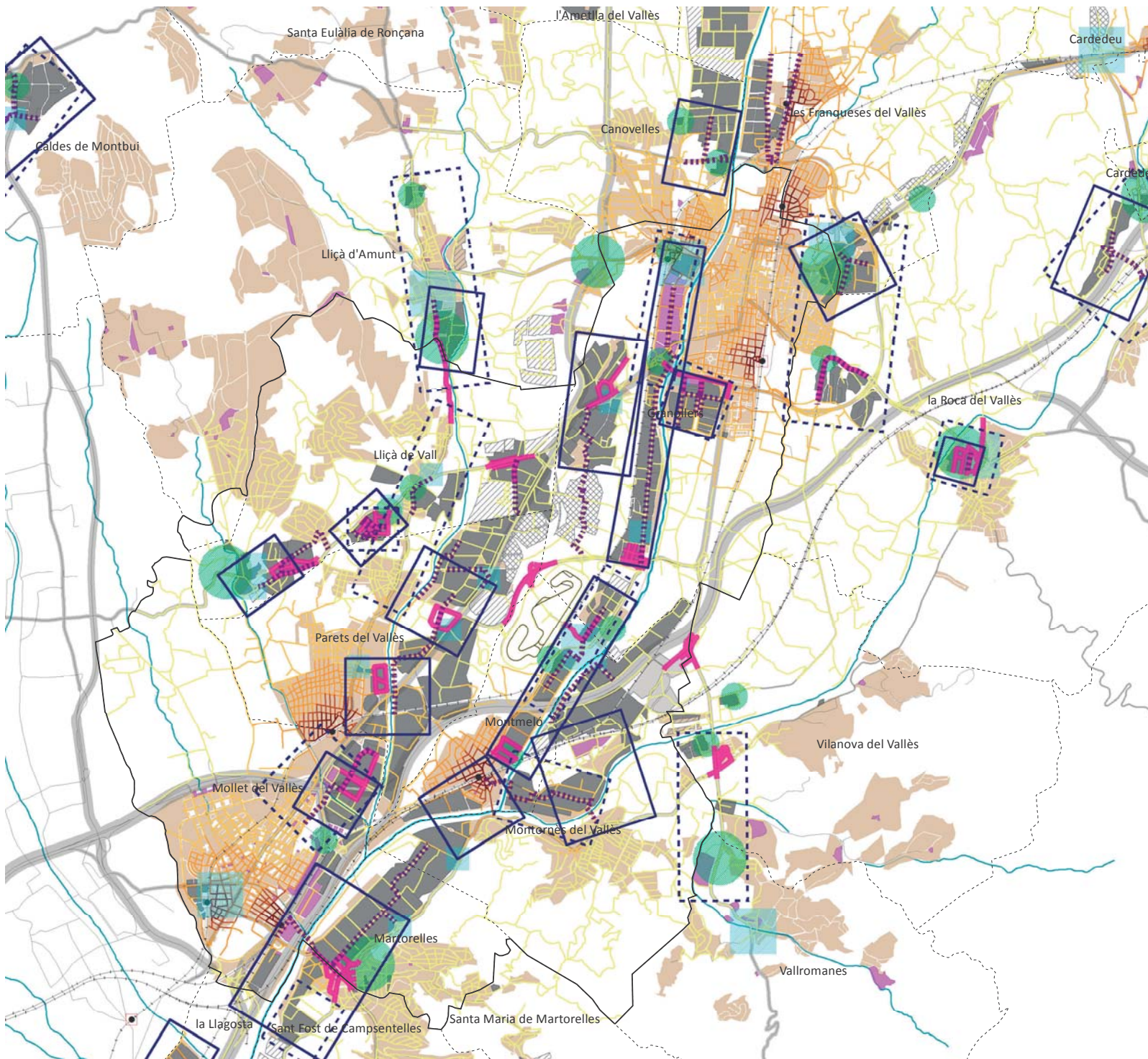
**DIAGNOSIS**

- Trip generation nodes
- Diversity nodes
- Trip generation areas
- Diversity nodes areas
- Structuring connectors
- Structuring segments



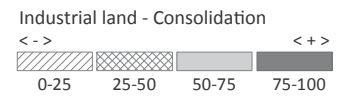
**2** DIAGNOSIS - SYNTHESIS

**6** PDU of the Circuit of Montmeló



**BASEMAP**

- Sector
- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



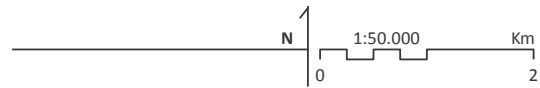
Distance to the nearest railway station (km)



Railway network

**DIAGNOSIS**




- Trip generation nodes
- Diversity nodes
- Trip generation areas
- Diversity nodes areas
- Structuring connectors
- Structuring segments



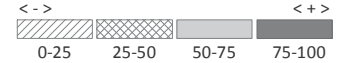
**3 STARTING HYPOTHESIS**

**1 Tram-train**

**BASEMAP**

-  Municipal boundaries
-  Urban land - Pla Territorial Metropolità Barcelona
-  Urban land - Tertiary

Industrial land - Consolidation



**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)

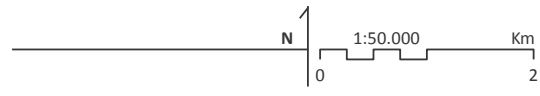
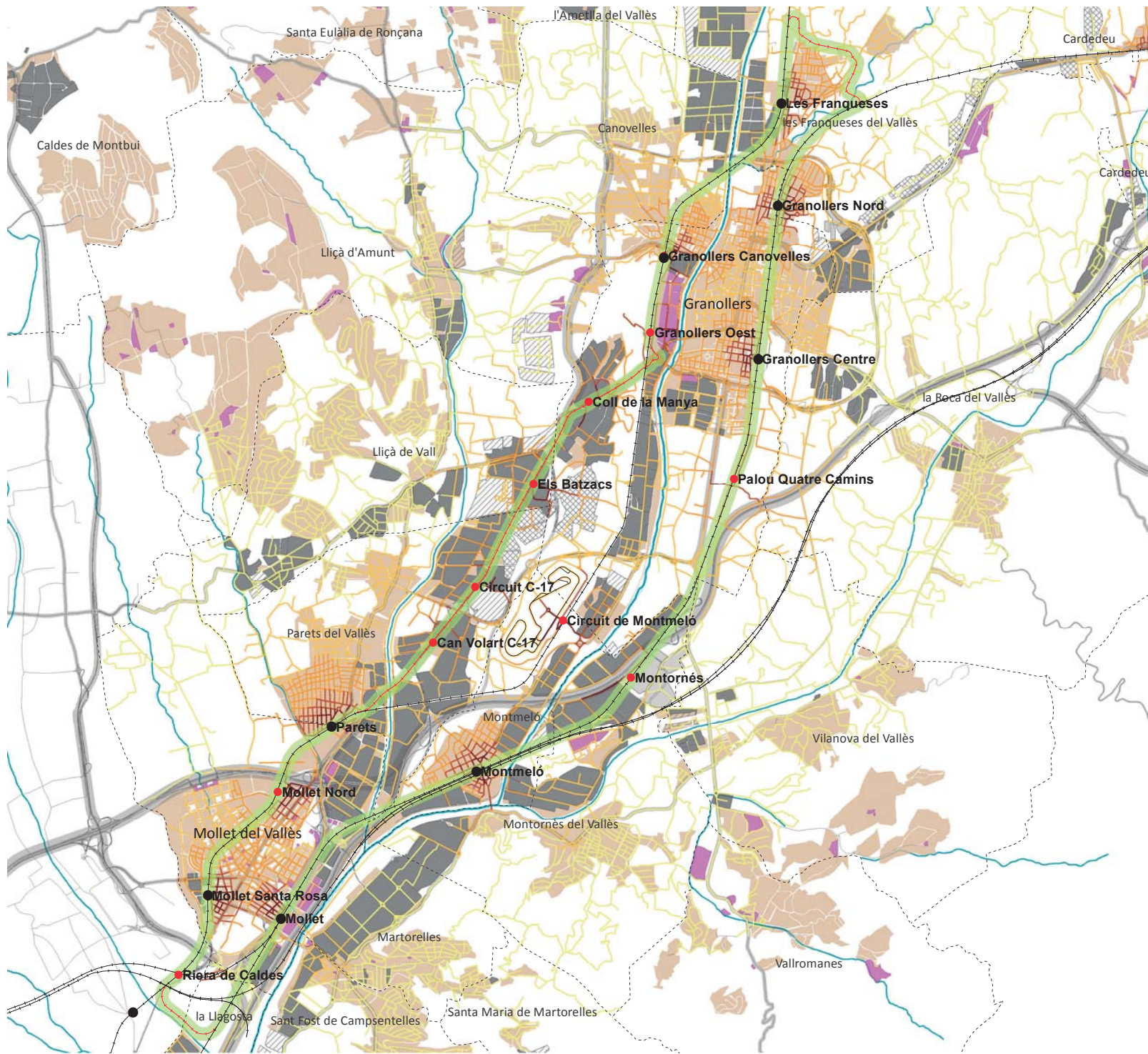


Distance to the nearest railway station (km)



**STARTING HYPOTHESIS**




-  Existing railway network / station
-  Proposed railway network / station
-  Proposed Tram-train

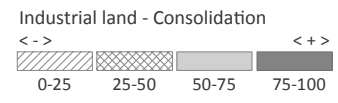


**3 STARTING HYPOTHESIS**

**2 Road junctions and sections**

**BASEMAP**

-  Municipal boundaries
-  Urban land - Pla Territorial Metropolità Barcelona
-  Urban land - Tertiary

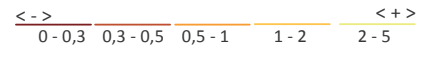


**ROAD AND RAILWAY NETWORKS**






Average daily traffic (Source: Generalitat de Catalunya, 2014)

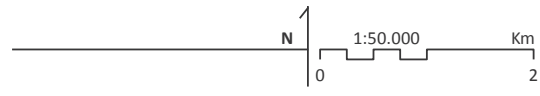
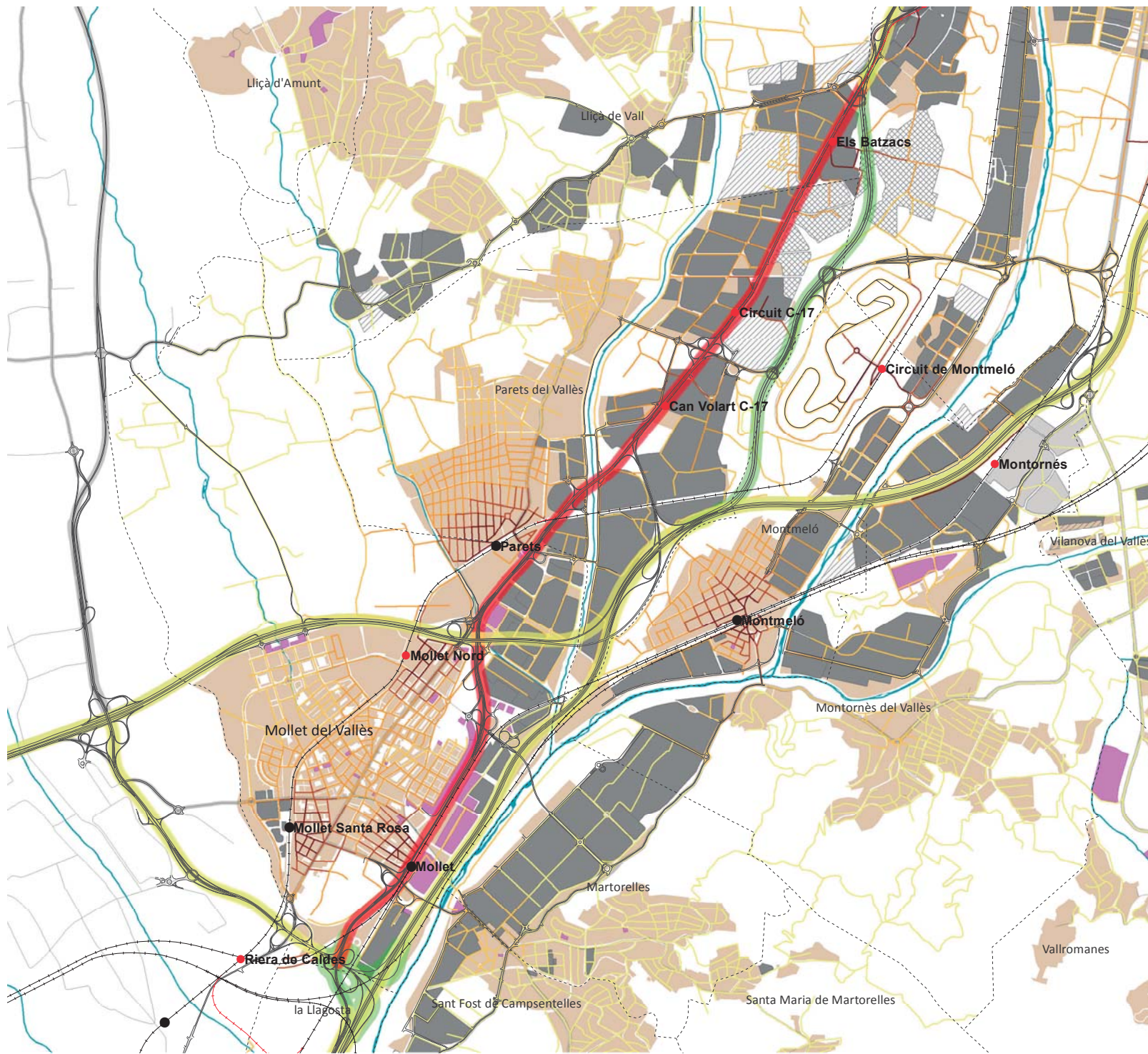


Distance to the nearest railway station (km)



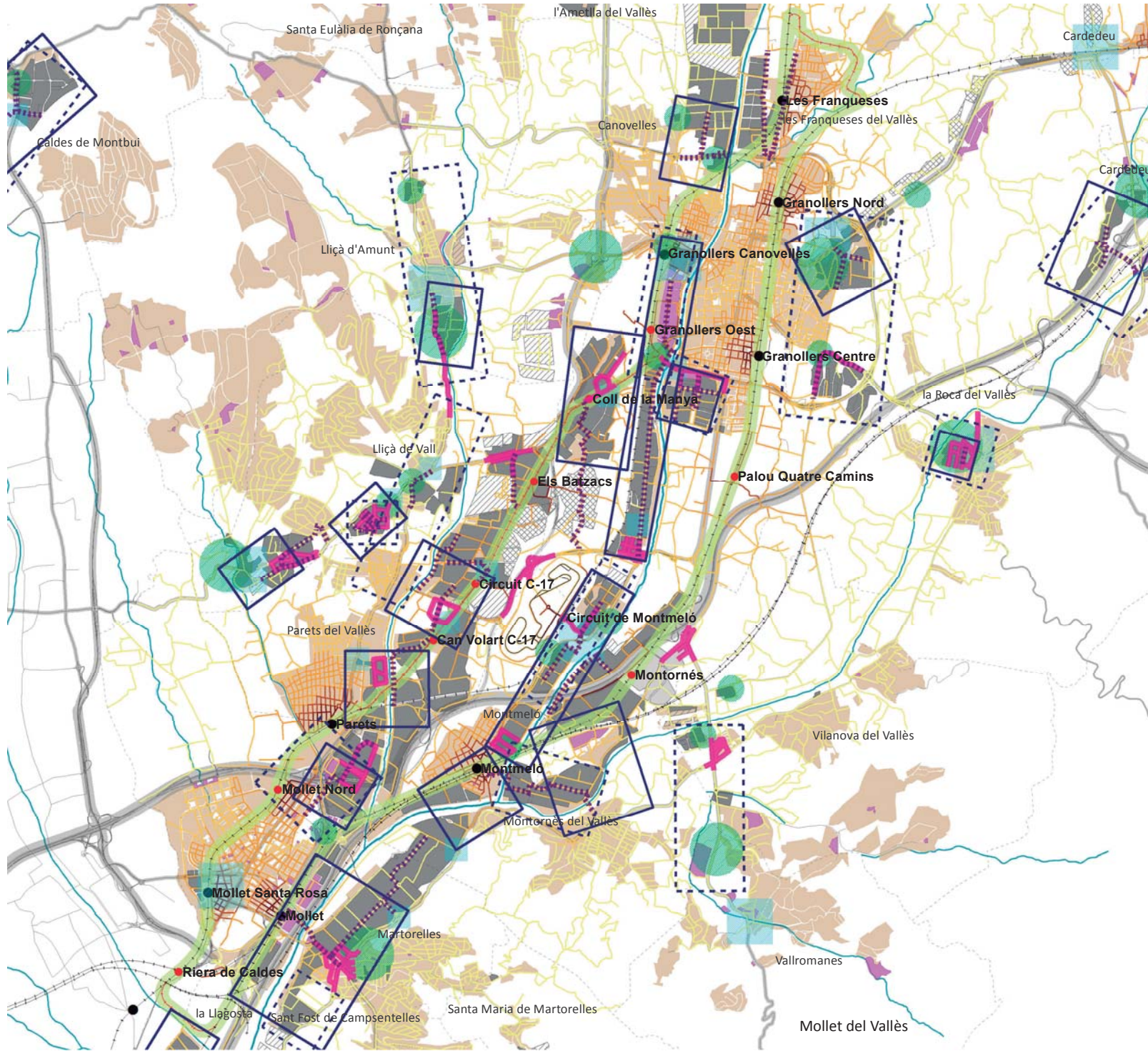
**STARTING HYPOTHESIS**

-  Existing high-capacity road system
-  C-17 Traffic calming strategy
-  Existing railway network
-  Road junctions and sections strategy
-  Proposed railway station



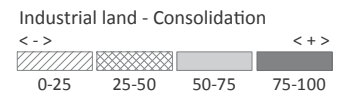
**4 INTERVENTION STRATEGIES**

**1** Diagnosis and starting hypothesis | Mollet-Granollers axis

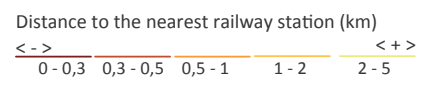
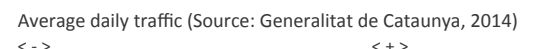


**BASEMAP**

- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary



**ROAD AND RAILWAY NETWORKS**

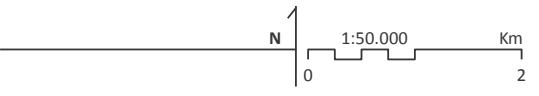


**STARTING HYPOTHESIS**

- Existing railway network / station
- Proposed railway network / station
- Proposed Tram-train

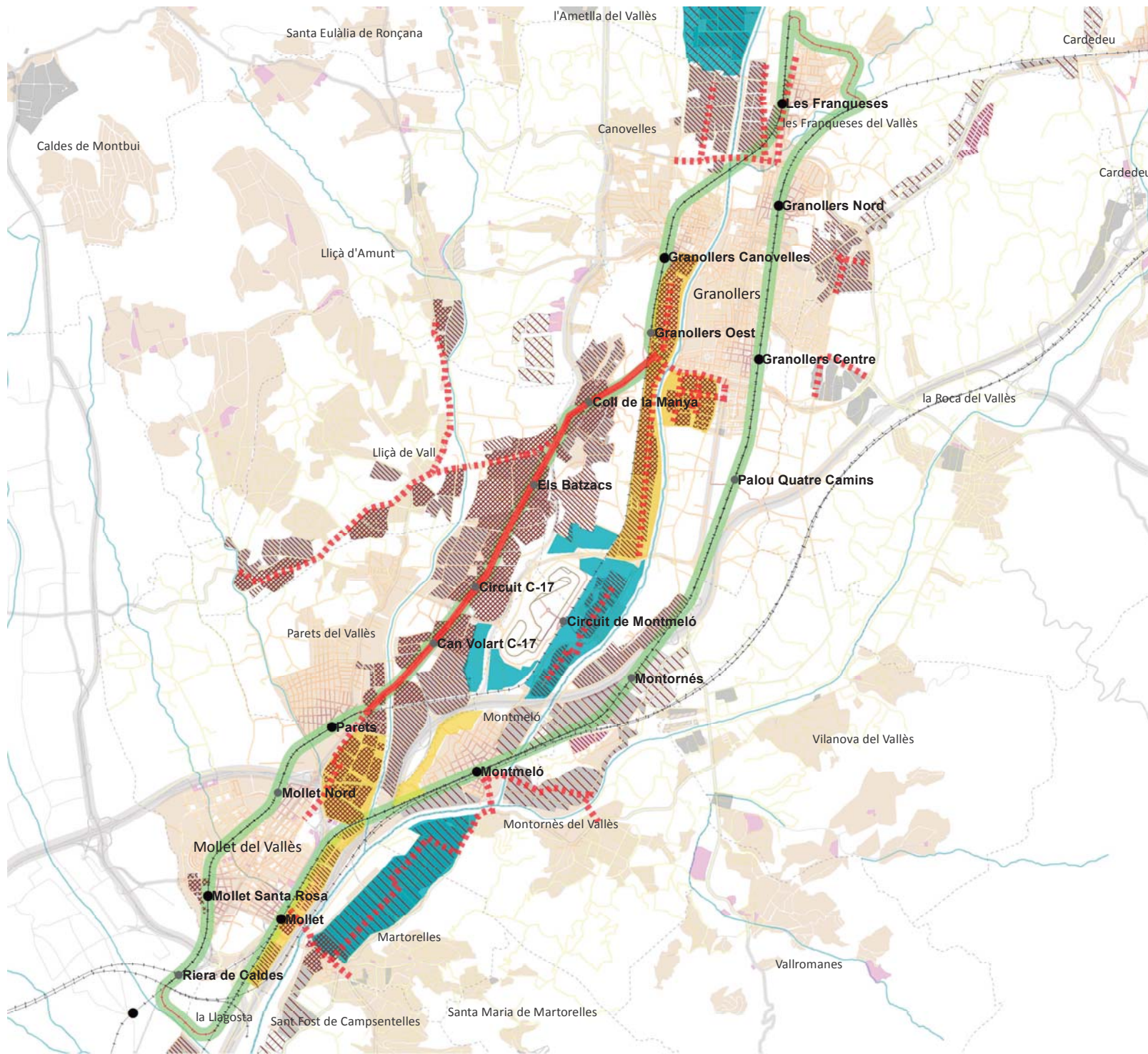
**DIAGNOSIS**

- Trip generation nodes
- Trip generation areas
- Diversity nodes areas
- Structuring connectors
- Structuring segments



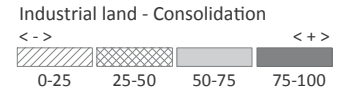
**4 INTERVENTION STRATEGIES**

**2 Strategies | Mollet-Granollers axis**



**BASEMAP**

- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

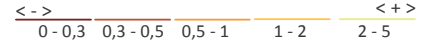


**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



Distance to the nearest railway station (km)

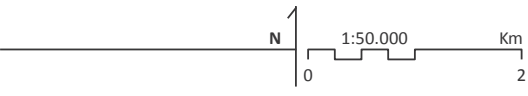


**STARTING HYPOTHESIS**

- Existing railway network / station
- Proposed railway network / station
- Proposed Tram-train

**INTERVENTION STRATEGIES**

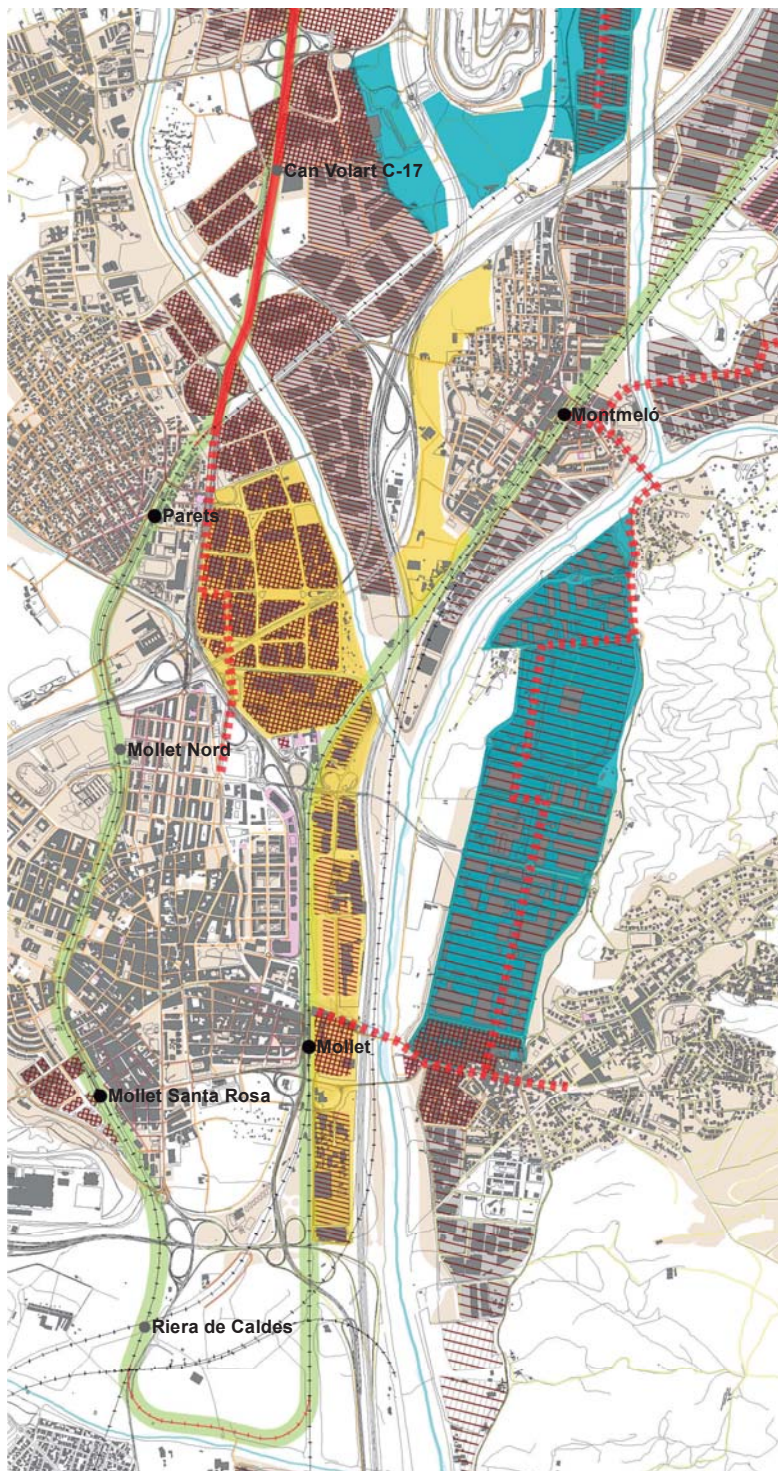
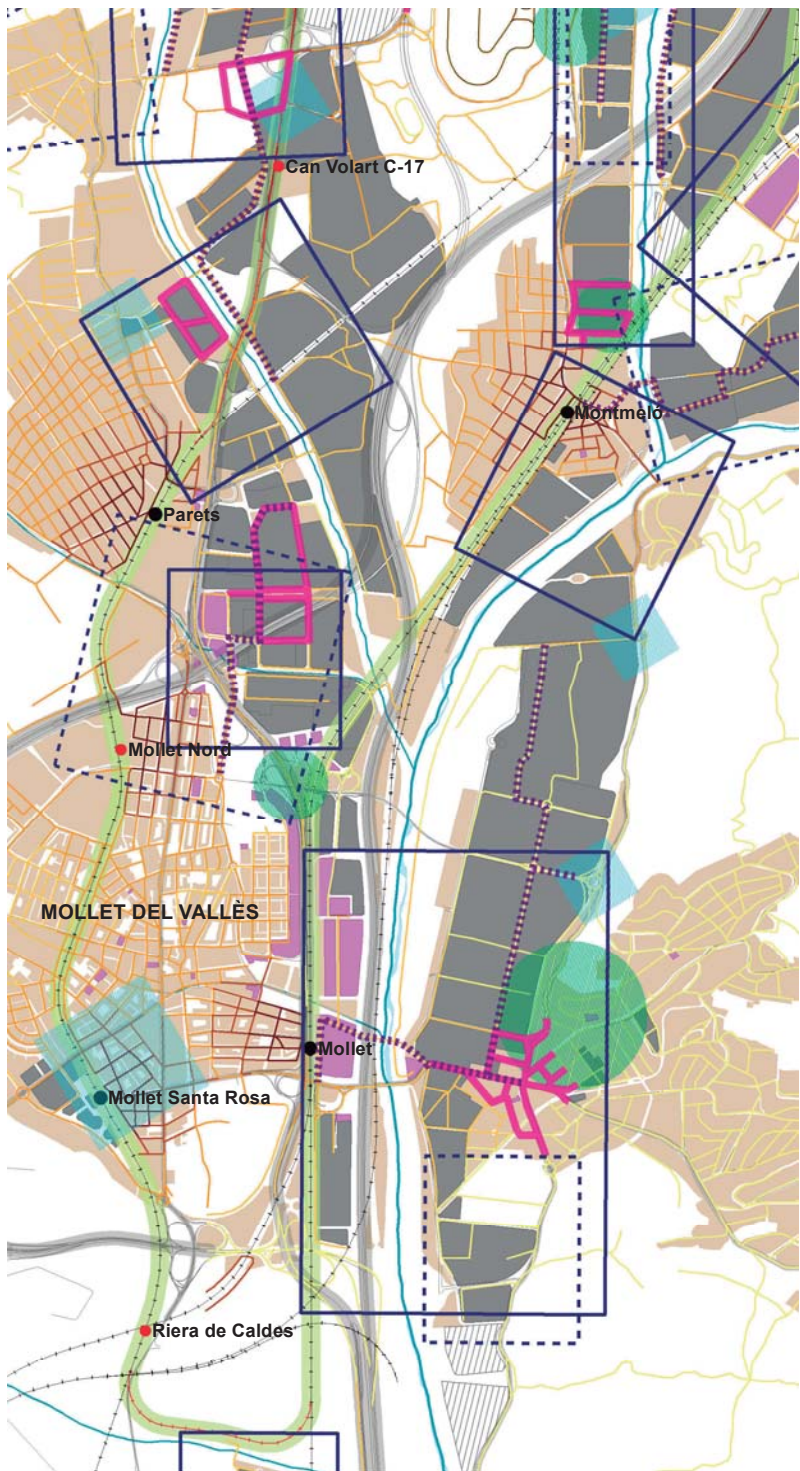
- | Transformation and/or completion           | Structuring proximity axes    |
|--|-------------------------------|
| Strengthening of the specialised character | Metropolitan-structuring axes |
| Med. urban mixicity                        | Fabric-structuring axes       |
| High urban mixicity                        |                               |
- Centralities**
- Industrial cluster centrality
  - Mixed centrality





**4 INTERVENTION STRATEGIES**

**3** Diagnosis and Strategies | Mollet



**BASEMAP**

- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary
- Industrial land - Consolidation
- <- -> 0-25 25-50 50-75 75-100

**ROAD AND RAILWAY NETWORKS**

- Average daily traffic (Source: Generalitat de Catalunya, 2014)
- <- ->
- Distance to the nearest railway station (km)
- <- -> 0 - 0,3 0,3 - 0,5 0,5 - 1 1 - 2 2 - 5

**STARTING HYPOTHESIS**

- Existing railway network / station
- Proposed railway network / station
- Proposed Tram-train

**DIAGNOSIS**

- Trip generation nodes
- Diversity nodes
- Trip generation areas
- Diversity nodes areas
- Structuring connectors
- Structuring segments

**INTERVENTION STRATEGIES**









- Transformation and/or completion**
- Strengthening of the specialised character
- Med. urban mixicity
- High urban mixicity
- Structuring proximity axes**
- Metropolitan-structuring axes
- Fabric-structuring axes
- Centralities**
- Industrial cluster centrality
- Mixed centrality



**4 INTERVENTION STRATEGIES**

**4** Diagnosis and Strategies | Montmeló

**BASEMAP**

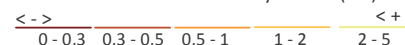
-  Municipal boundaries
-  Urban land - Pla Territorial Metropolità Barcelona
-  Urban land - Tertiary
- Industrial land - Consolidation
-  <- ->
-  0-25
-  25-50
-  50-75
-  75-100

**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



Distance to the nearest railway station (km)










**STARTING HYPOTHESIS**

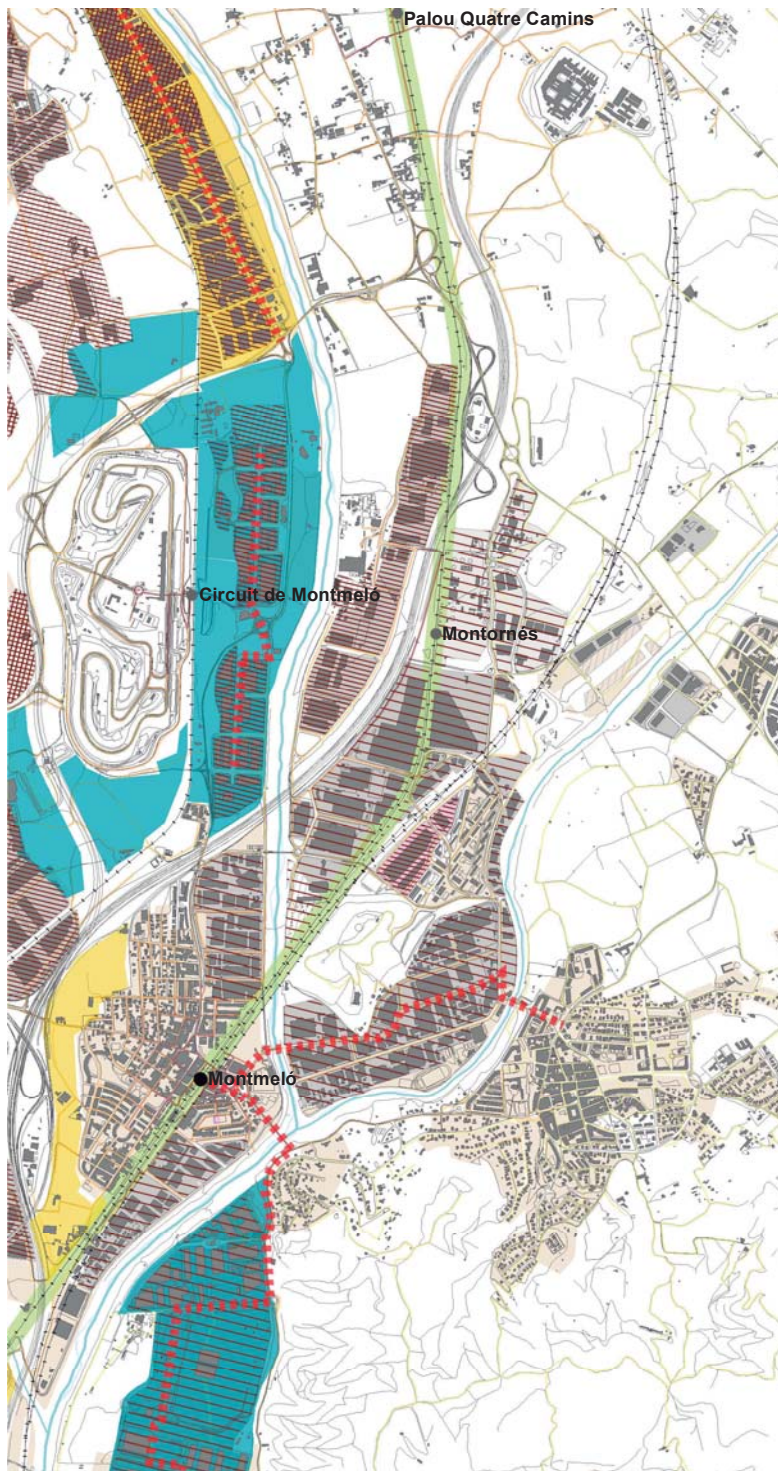
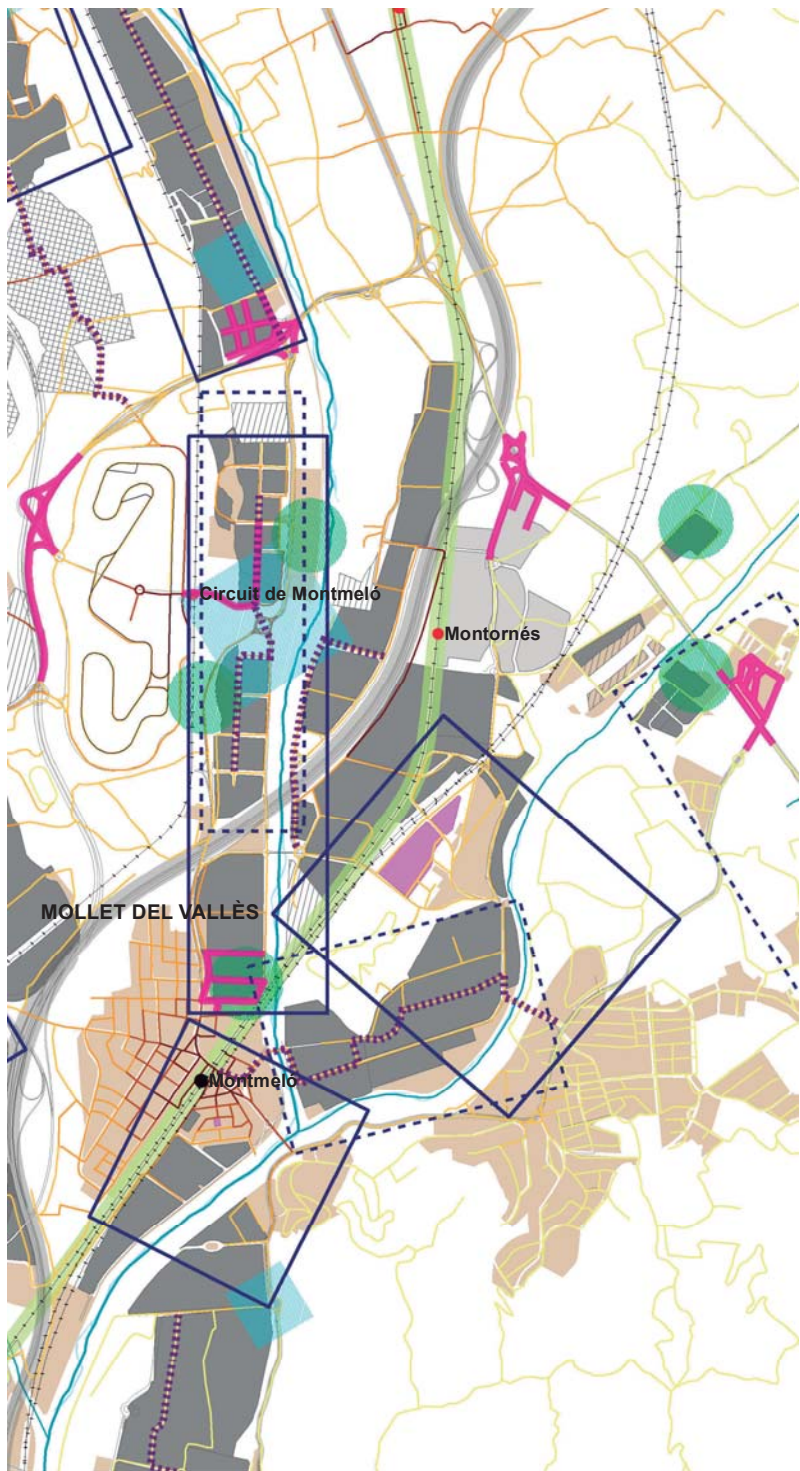
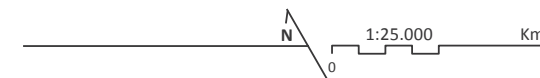
-  Existing railway network / station
-  Proposed railway network / station
-  Proposed Tram-train

**DIAGNOSIS**

-  Trip generation nodes
-  Trip generation areas
-  Diversity nodes
-  Diversity nodes areas
-  Structuring connectors
-  Structuring segments

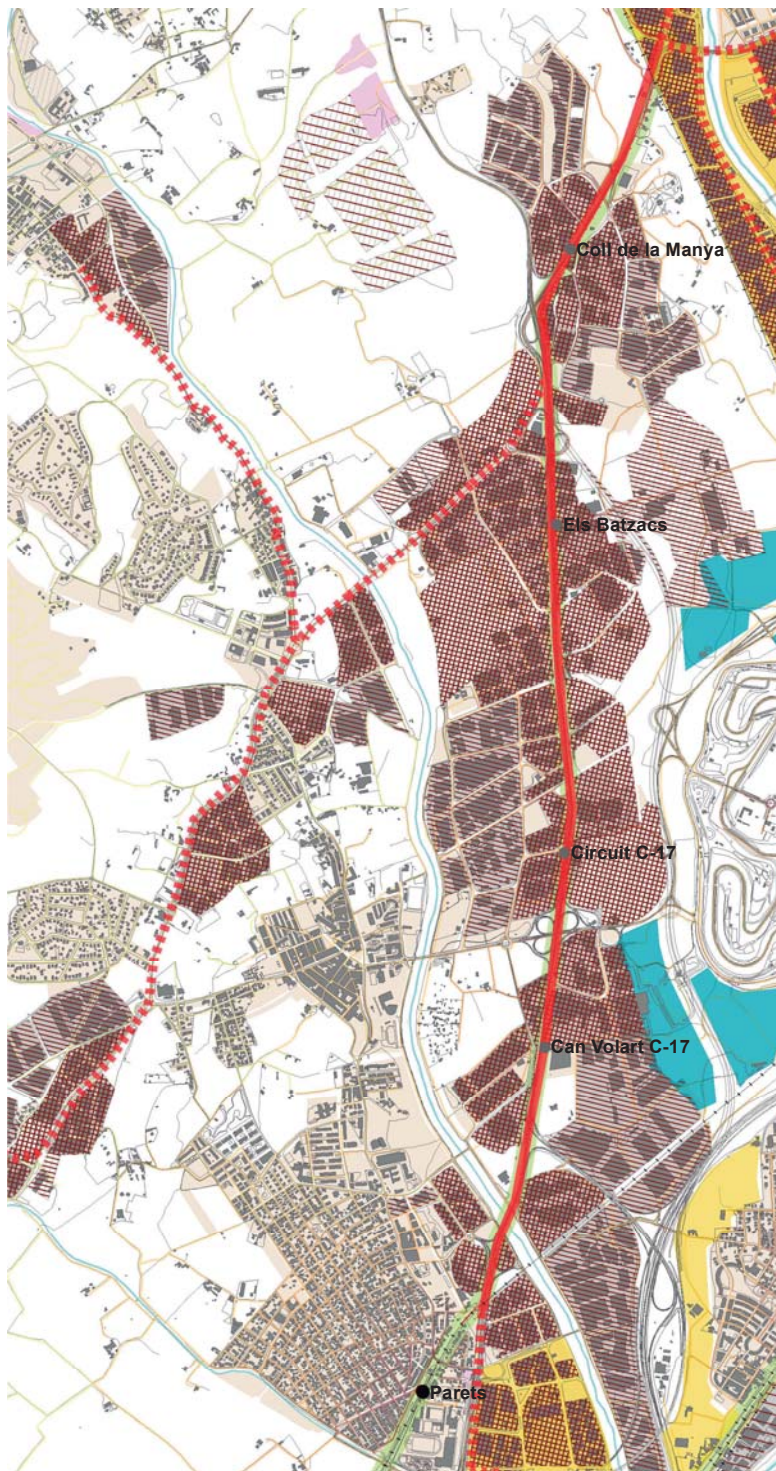
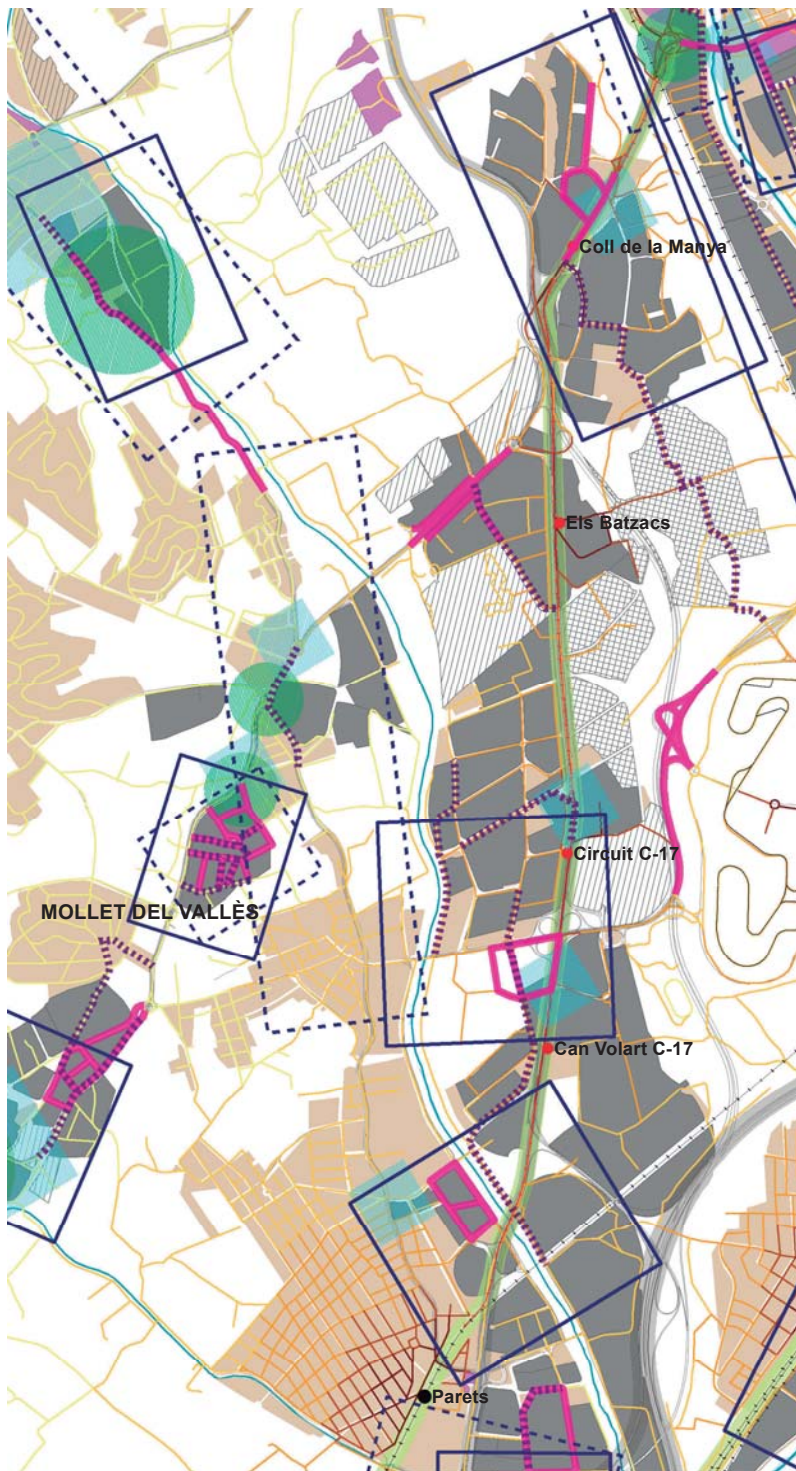
**INTERVENTION STRATEGIES**

- Transformation and/or completion**
-  Strengthening of the specialised character
-  Metropolitan-structuring axes
-  Med. urban mixicity
-  Fabric-structuring axes
-  High urban mixicity
- Centralities**
-  Industrial cluster centrality
-  Mixed centrality

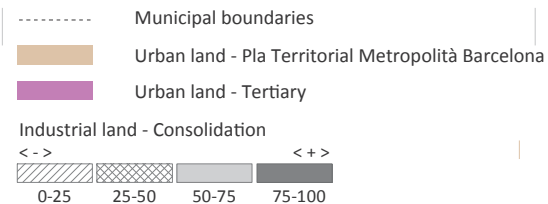


**4 INTERVENTION STRATEGIES**

**5** Diagnosis and Strategies | Road C-17



**BASEMAP**

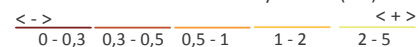


**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



Distance to the nearest railway station (km)



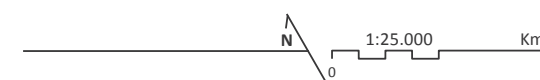
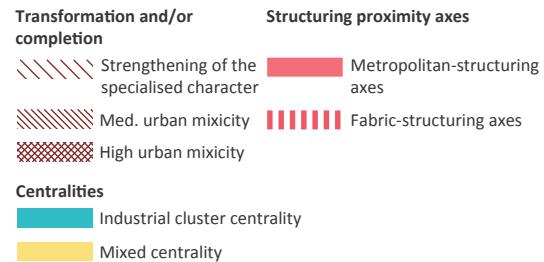
**STARTING HYPOTHESIS**



**DIAGNOSIS**

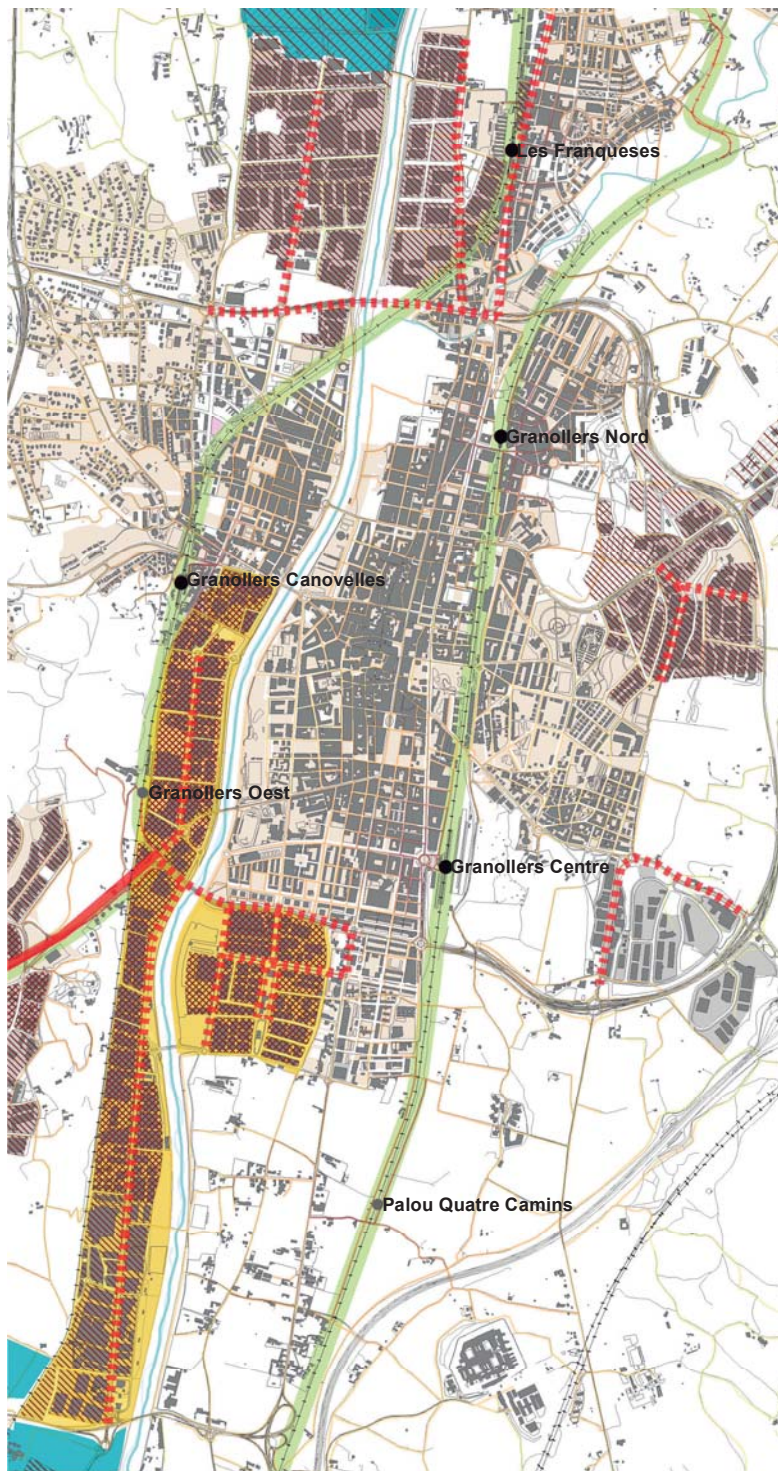
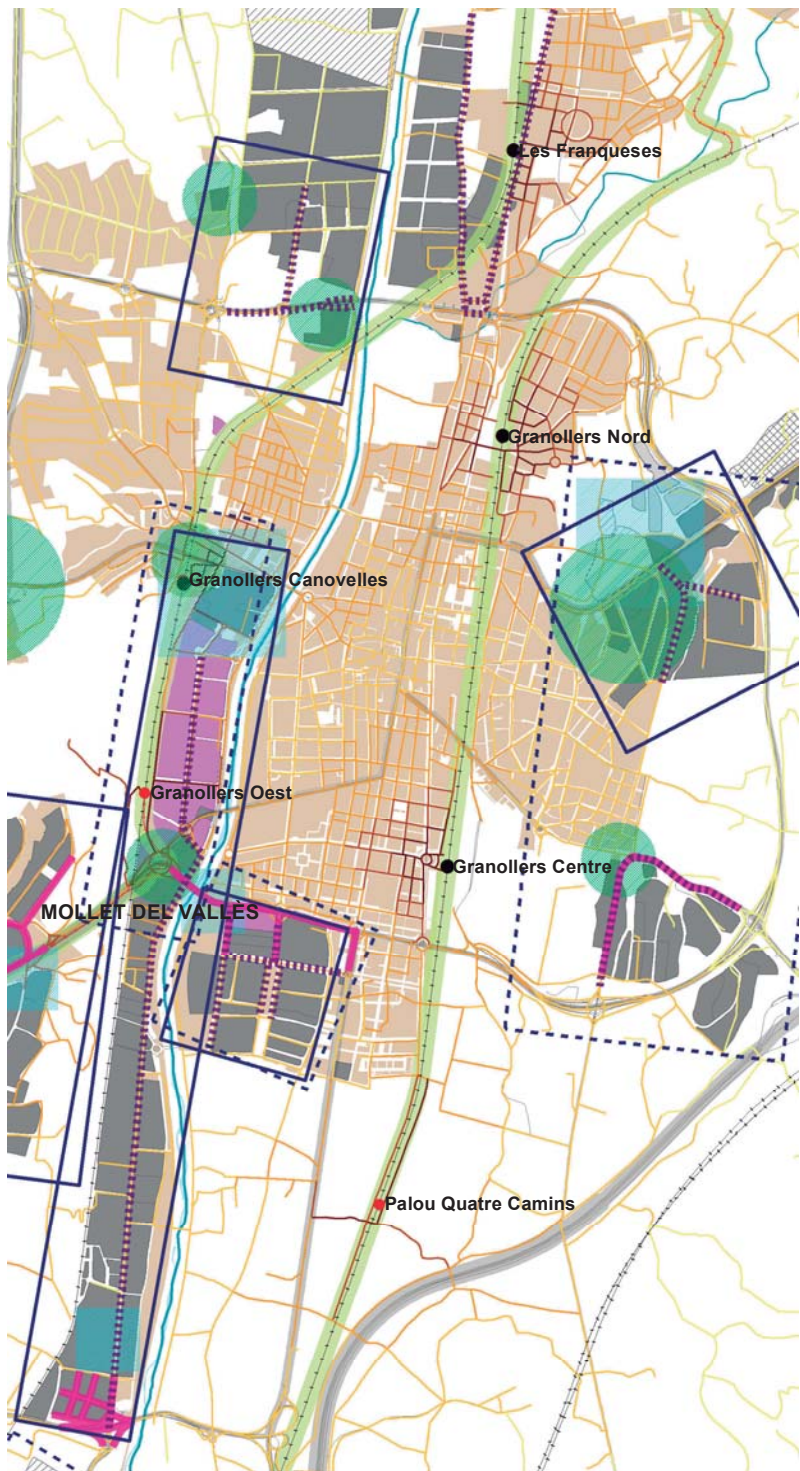


**INTERVENTION STRATEGIES**



**4 INTERVENTION STRATEGIES**

**6** Diagnosis and Strategies | Granollers



**BASEMAP**

- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary
- Industrial land - Consolidation
- <- -> <+ +>
- 0-25 25-50 50-75 75-100

**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)

- <- -> <+ +>

Distance to the nearest railway station (km)

- <- -> <+ +>
- 0 - 0,3 0,3 - 0,5 0,5 - 1 1 - 2 2 - 5

**STARTING HYPOTHESIS**

- Existing railway network / station
- Proposed railway network / station
- Proposed Tram-train

**DIAGNOSIS**

- Trip generation nodes
- Diversity nodes
- Trip generation areas
- Diversity nodes areas
- Structuring connectors
- Structuring segments

**INTERVENTION STRATEGIES**

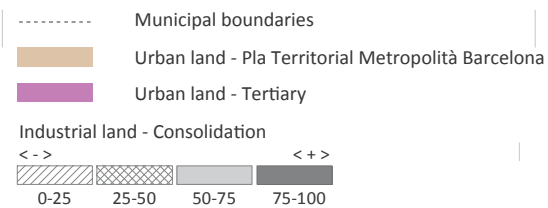
- Transformation and/or completion**
- Strengthening of the specialised character
- Med. urban mixity
- High urban mixity
- Structuring proximity axes**
- Metropolitan-structuring axes
- Fabric-structuring axes
- Centralities**
- Industrial cluster centrality
- Mixed centrality



**4 INTERVENTION STRATEGIES**

**7** Diagnosis | Circuit of Montmeló

**BASEMAP**

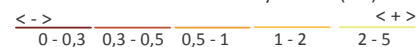


**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)



Distance to the nearest railway station (km)



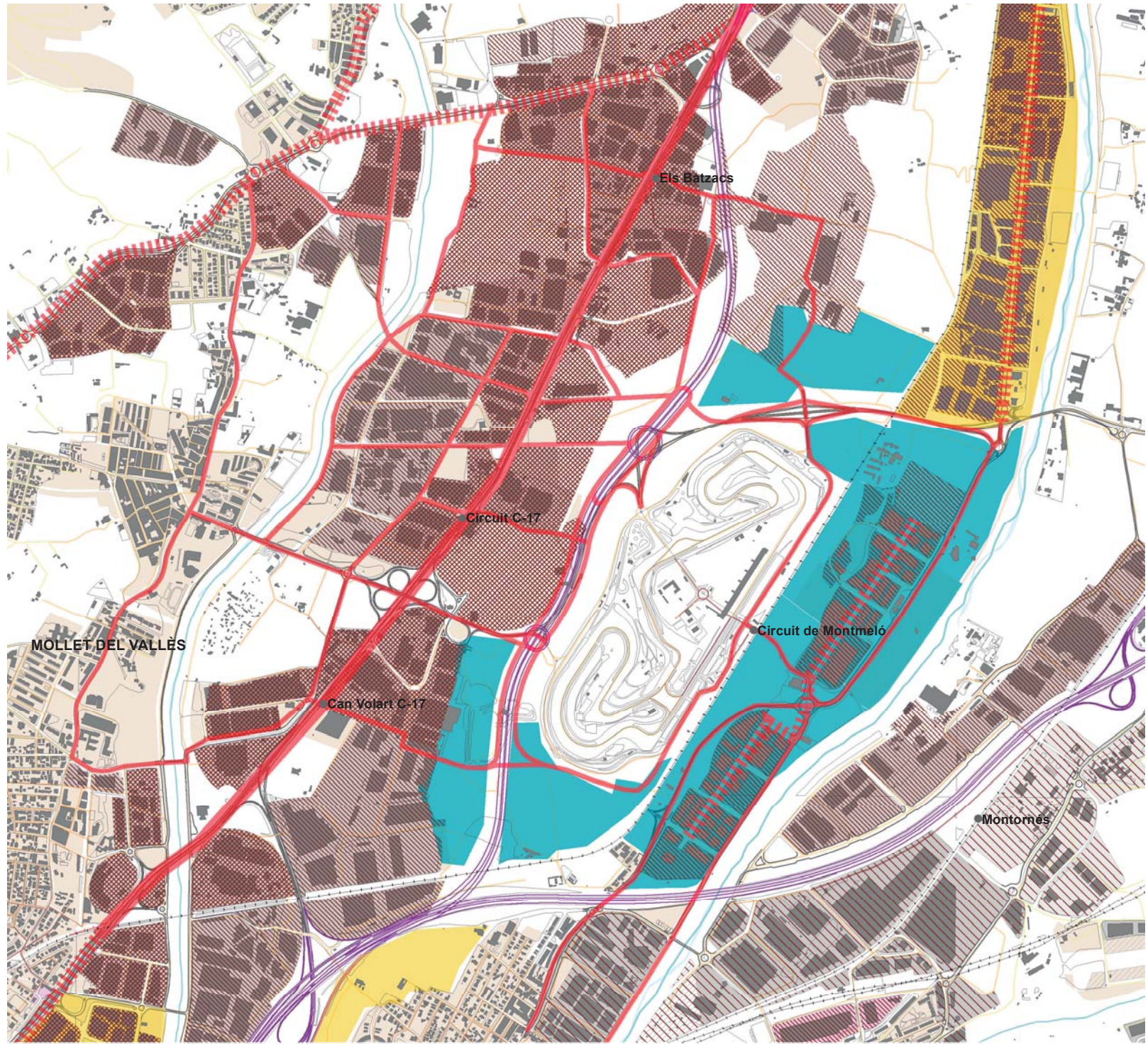
**STARTING HYPOTHESIS**



**DIAGNOSIS**



**4 INTERVENTION STRATEGIES**  
**8** Intervention Strategies | Circuit of Montmeló



**BASEMAP**

- Municipal boundaries
- Urban land - Pla Territorial Metropolità Barcelona
- Urban land - Tertiary

Industrial land - Consolidation

<->	<+>
0-25	25-50
50-75	75-100

**ROAD AND RAILWAY NETWORKS**

Average daily traffic (Source: Generalitat de Catalunya, 2014)

<->	<+>
-----	-----

Distance to the nearest railway station (km)

<->	<+>
0-0,3	0,3-0,5
0,5-1	1-2
2-5	

**STARTING HYPOTHESIS**

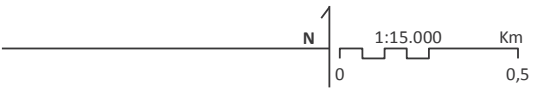
- Existing railway network / station
- Proposed railway network / station
- Proposed Tram-train

**INTERVENTION STRATEGIES**

Transformation and/or completion	Structuring proximity axes
Strengthening of the specialised character	Metropolitan-structuring axes
Med. urban mixicity	Fabric-structuring axes
High urban mixicity	Linkage grids

**Centralities**

- Industrial cluster centrality
- Mixed centrality



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