

**Urban Integration of Railway Stations in Modern Cities
Fostering Connectivity and Sustainability**

Urban Integration of Railway Stations in Modern Cities

Fostering Connectivity and Sustainability

Ass. PhD. Eng. Arch. Ivana Stefanovska Cvetkovska - UACG

Railway talk 2024

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Madrid Atocha Railway station



Tokyo Railway station

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Railway stations as dividers within the city



Physical Division: Railway tracks and station infrastructure often physically divide urban areas. These divisions can present both challenges and opportunities for cities:

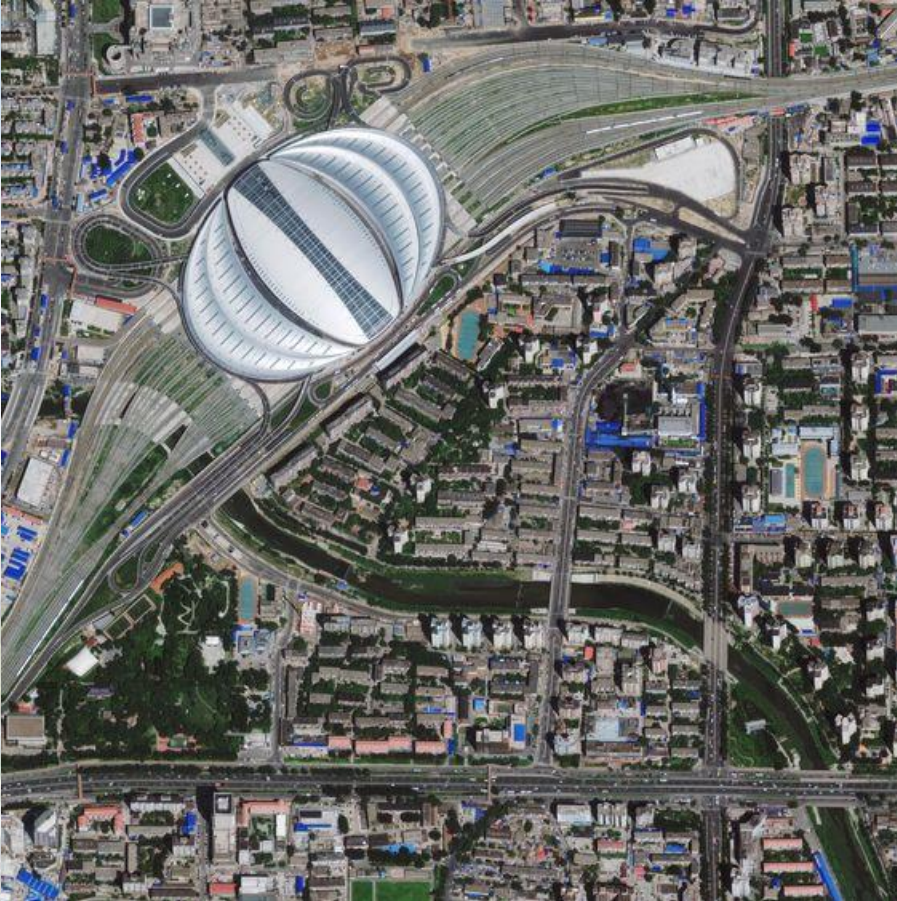
- *Barriers to pedestrian and vehicular traffic*
- *Impact on urban design*

Physical Division

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Railway stations as dividers within the city



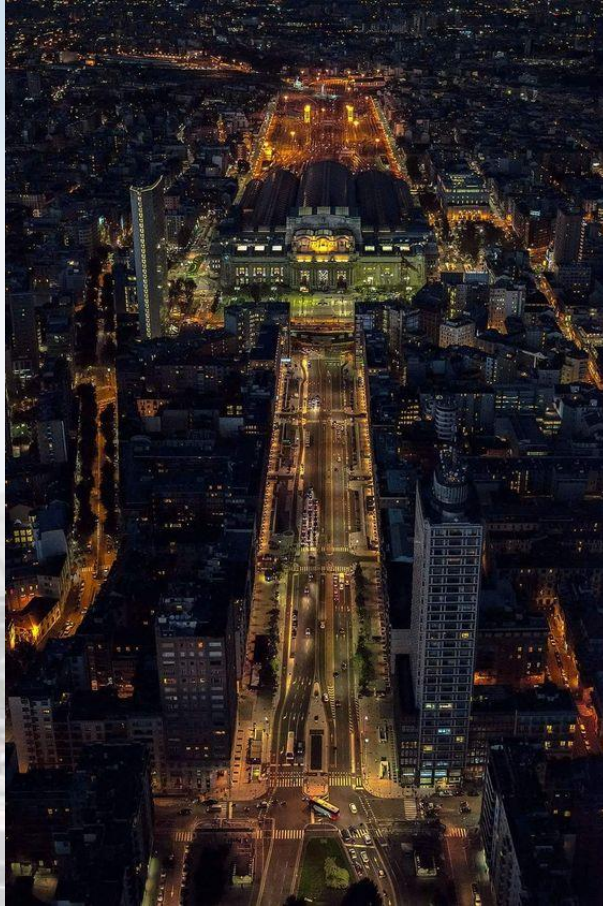
Noise and pollution

Noise and pollution: Railway operations, especially in densely populated urban areas, can lead to noise pollution and air pollution. These environmental impacts can have far-reaching consequences:

- *Noise pollution* - The constant rumble of trains, the screeching of brakes, and the blaring of horns can contribute to noise pollution, affecting the quality of life for residents living in proximity to railway tracks.
- *Air pollution* - Diesel-powered locomotives can emit pollutants harmful to both the environment and public health.

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Railway stations as dividers within the city

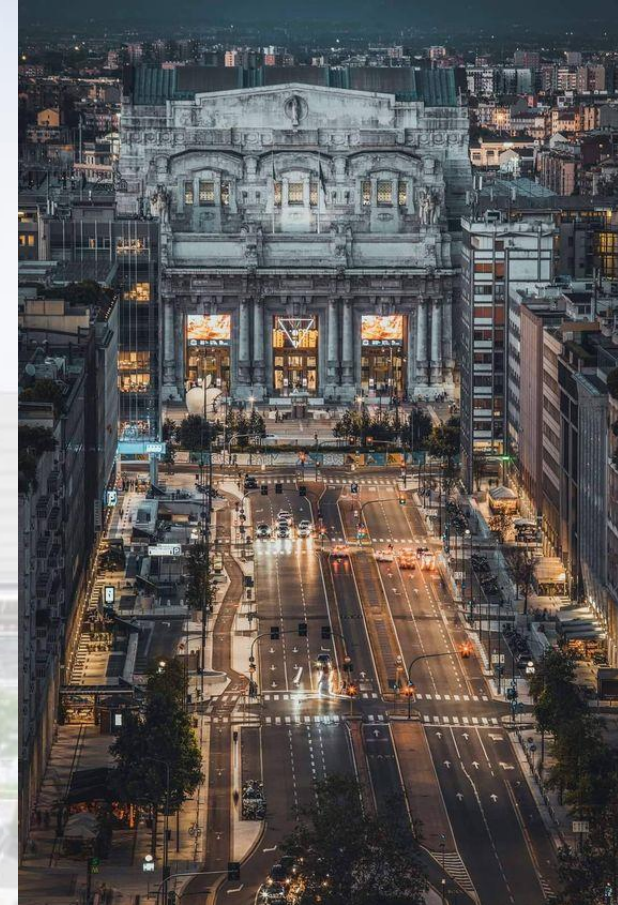


Economic Disparities

Economic Disparities:

The presence of major railway stations within a city can create economic disparities among neighborhoods:

- *Property values and development*, Areas in close proximity to major railway stations often experience higher property values and real estate development.



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Connection within the city



Transportation hub: Railway stations serve as vital transportation hubs that foster connectivity within cities and beyond. They provide several advantages for urban mobility:

- *Intermodal connectivity* - Railway stations often serve as intermodal transportation hubs, connecting different modes of transit, including trains, buses, trams, and subways.
- *Efficient commuting*

Transportation hub

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Connection within the city



Economic catalyst: Railway stations have a significant impact on the economic development of the areas surrounding them:

Economic catalyst

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Connection within the city



Economic catalyst

- *Businesses and commercial activity* -

The presence of a major railway station can attract businesses, hotels, and commercial developments to its vicinity. This economic activity generates job opportunities and contributes to the local economy. Retail outlets, restaurants, and services often flourish in these areas.

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Connection within the city



- *Cultural events* -

Many railway stations host cultural events, art exhibitions, and performances. These events enrich the cultural landscape of the city and engage both travelers and the local community.

Economic catalyst

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Connection within the city



- *Meeting points* -

Railway stations are natural meeting points for friends, families, and colleagues. They serve as convenient rendezvous locations and play a role in enhancing social connections.

Economic catalyst

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Urban planning



Transit-Oriented Development (TOD)

- Mixed land use - Urban planners encourage a mix of residential, commercial, and recreational spaces within walking distance of railway stations. This approach minimizes the need for long commutes and encourages residents to use public transportation

- Density
- Pedestrian – friendly design
- Green spaces

Mixed land use

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Urban planning



Transit-Oriented Development (TOD)

- *Mixed land use*
- *Density - Higher population density around railway stations is promoted to support transit ridership and reduce urban sprawl. High - density development often includes apartments, condominiums, and office buildings, creating a dynamic urban environment*
- *Pedestrian – friendly design*
- *Green spaces*

Density

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Urban planning



Transit-Oriented Development (TOD)

- *Mixed land use*
- *Density*
- *Pedestrian – friendly design - Urban planners prioritize pedestrian-friendly infrastructure, including wide sidewalks, crosswalks, and public spaces. This encourages walking and cycling, reducing the reliance on private vehicles.*
- *Green spaces*

Pedestrian – friendly design

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Urban planning



Transit-Oriented Development (TOD)

- *Mixed land use*
- *Density*
- *Pedestrian – friendly design*
- *Green spaces - TOD projects often incorporate green spaces and parks, enhancing the urban environment's livability and providing residents with recreational areas*

Green spaces

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Redevelopment and revitalization



Gare d'Orsay, Paris, France – Museum d'Orsay

- Adaptive reuse -

Historic railway stations are often preserved and adaptively reused for modern purposes. They may become cultural centers, museums, hotels, or commercial spaces while retaining their architectural charm.

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Redevelopment and revitalization



Transit squares – Hong Kong

- Transit squares -

Urban planners design transit squares and public spaces around stations to create welcoming entry points for passengers. These spaces often feature landscaping, artwork, and seating, enhancing the station's aesthetic appeal

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Connectivity



Tokyo

- Seamless connections -

Urban planners work to ensure seamless connections between railway stations and other modes of transportation, such as buses, trams, subways, and bike-sharing systems. Well-designed interchanges make it easy for passengers to transfer between different modes of transit;

- Infrastructure upgrades -

Urban planning often involves infrastructure upgrades, such as the construction of new rail lines, platforms, and terminal expansions, to accommodate growing passenger numbers.

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Sustainability and Green Development



Sustainability is a core consideration in modern urban planning:

- *Green design;*
- *Promotion of public transportation;*
- *Pedestrian and bike – friendly infrastructure*

Transforming a former railway line into a green district in Paris

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Sustainability and Green Development



The development of an urban park above the railway lines creates accessible and usable green public spaces, providing an enhanced experience for commuters and casual visitors. The design suggests a renewed transportation system allowing one to walk, bike and use the train, creating a balance between private and public modes, reducing congestion and overcrowding.

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St Pancras International – London, UK



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St Pancras International – London, UK



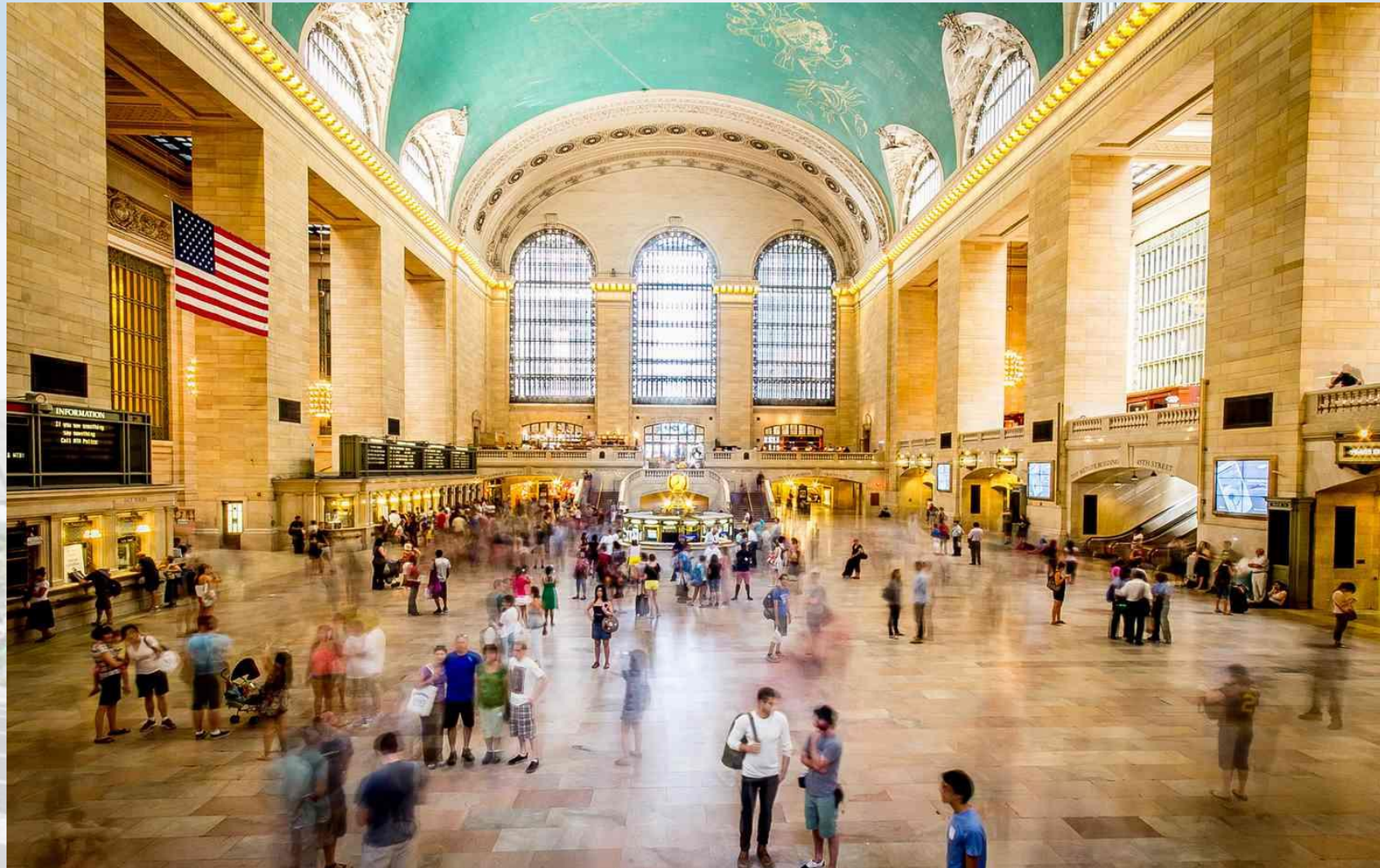
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Grand Central Terminal - New York City, USA



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**Urban Integration of Railway Stations in Modern Cities
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Zurich Hauptbahnhof - Zurich, Switzerland



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**Urban Integration of Railway Stations in Modern Cities
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Gare du Nord - Paris, France



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Shanagawa station – Tokyo, Japan



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Shanagawa station – Tokyo, Japan



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Challenges

- **Congestion and overcrowding**
- **Aging infrastructure**
- **Environmental impact**
- **Accessibility**
- **Security**

Future trends

- **Smart stations**
- **Sustainability**
- **Multimodal integration**
- **Adaptive reuse**
- **Digitalization**

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Thank you for your attention!

