The New Transport System, or NTR, is the standardized automated guideway transit (AGT) system of Japan as a part of the urban public transport.

⇒ See the introducing movie: Yokohama Seaside Line

**What’s NEW TRANSPORT SYSTEM (NTS)**

Japan’s standardized automated guideway transit (AGT) system!

NTS & GB currently operated in Japan

- Port Liner, KOBE
- Nankō Port Town Line, OSAKA
- Rokko Liner, KOBE
- Astram Line, HIROSHIMA
- Seaside Line, YOKOHAMA
- Yurikamome, TOKYO
- Nippori Toneri Liner, TOKYO
- GB: Yutorito Line, NAGOYA*

*UG: Underground section exists

*The Guideway Bus, or GB, is the standardized guideway bus system of Japan, which can run both on ordinal streets, and on elevated exclusive guideways in areas with frequent traffic congestions.
In Japan, **Seven (7)** of **11 AGTs** are the standardized AGTs = **NTS**

- **Ohmiya**: 1983 - Ina Line (New Shuttle) (12.7 km; 13 stations)
- **Tokorozawa**: 1985 - Leo Liner (2.8 km; 3 stations)
- **Sakura**: 1982 - Youkarigaoka Line (4.1 km; 6 stations)
- **Komaki**: 1991-2006 - Peach Liner (7.4 km; 7 stations)
- **Tokyo**: 2008-2009 - Nippori-Toneri Liner (9.8 km; 13 stations)
- **Tokyo**: 1995-2009 - Yurikamome (14.8 km; 16 stations)
- **Osaka**: 1981- - Nanko Port Town Line (7.9 km; 10 stations)
- **Kobe**: 1990- - Rokko Liner (4.5 km; 6 stations)
- **Kobe**: 1981- - Port Liner (10.8 km; 12 stations)
- **Hiroshima**: 1994- - Astram Line (18.4 km; 21 stations)

**In Japan, Seven (7) of 11 AGTs are the standardized AGTs = NTS**

- **UG**: Underground section exists

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**13 NTS lines** have been introduced **outside Japan**.

- **Dubai**, UAE - Dubai Int’l Airport (5.2 km, 2 stations)
- **Busan**, Korea - Busan Metro Line 4 (12.7 km, 14 stations)
- **Incheon**, Korea - Incheon Int’l Airport (0.9 km, 2 stations)
- **Incheon**, Korea - Incheon Int’l Airport (1.3 km, 4 stations)
- **Atlanta**, USA - Atlanta Hartsfield-Jackson International Airport (2.3 km, 3 stations)
- **Miami**, USA - Miami International Airport (1.1 km, 4 stations)
- **Hong Kong**, China - Hong Kong Int’l Airport (1.3 km, 2 stations)
- **Taiwan**, China - Taoyuan Int’l Airport (1.3 km, 4 stations)
- **Macau**, China - Macau Phase 1 [under Construction] (21 km, 21 stations)
- **Washington D.C.**, USA - Washington Dulles Int’l Airport (3.5 km, 4 stations)
- **Miami**, USA - Miami International Airport (2.3 km, 2 stations)

**Urban lines** (six (6) lines) **UG/RT** Underground/Rooftop section exists
**Results of NTS**  
【No. 1】

**Modal change to NTS from Bus/Car**

Change in Modal share  
(A Case of Astram line, Hiroshima)

Source: MLIT “Urban monorail & New Transport System”

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**Results of NTS**  
【No. 2】

Quick and Smooth Transfer  
w/ other transport modes

This would be realized with close coordination in planning and designing stages.
Ten (10) Merits of NTS

【No. 1】

**Sufficient Transport Capacity**
- 10-20 thousand passengers per hour (≒ Four (4) times of the Streetcar)
- or more that depends on customer’s requirement

![Image showing 13,000 vehicles vs 1 train]

Ten (10) Merits of NTS

【No. 2】

**Environmentally Friendly & Stable System**
- lower noise and vibration!
- no exhaust gas!!
- Stable structure with less swinging!!!
Ten (10) Merits of **NTS**

【No. 3】

**Easy to Turn around**
- Turning radius: 20 meters minimum
  (Usually, more than 160 m (ordinary train) & 100 m (monorail))
- Gradient: ten (10) % maximum
  (Usually, 1 % for the cargo train; 3 % for the ordinary train)

Ten (10) Merits of **NTS**

【No. 4】

**Simplified Structure**

AGT: **Simple construction** for running plinth
(no catenary system is needed.)
MRT: **Catenary** system is required.
Monorail: Higher accuracy is required for the **girder beam**, and Special work shops are necessary.
Ten (10) Merits of **NTS**

**【No. 5】**

**Lower Costs for Construction & others**

= lighter and small-sized infrastructure =

Examples of **Construction Costs**

(in case: **NTS = 1**)

<table>
<thead>
<tr>
<th>NTS</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subway</td>
<td>3</td>
</tr>
<tr>
<td>Monorail</td>
<td>1.2</td>
</tr>
<tr>
<td>Guideway Bus</td>
<td>0.5</td>
</tr>
<tr>
<td>Streetcar</td>
<td>0.7</td>
</tr>
</tbody>
</table>

* Costs for land acquisition are excluded.
Source: Eiji WATANABE "Project findings of Monorail overseas & Project Management", 2010

Ten (10) Merits of **NTS**

**【No. 6】**

**No Delay for Construction**

= No need for R.O.W. land acquisition =

**VS.**

ordinary train system

Infrastructure of **NTS** is to be constructed within the current road space.
Ten (10) Merits of **NTS**

**【No. 7】**

**Easy to Change the Vehicle Configuration Even within the Daily Operation**

<table>
<thead>
<tr>
<th></th>
<th>Operating Train Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Daily Off-Peak period</strong></td>
<td><img src="image1" alt="Train Configuration" /></td>
</tr>
<tr>
<td><strong>Daily Peak period</strong></td>
<td><img src="image2" alt="Train Configuration" /></td>
</tr>
</tbody>
</table>

- **Initial Phase**
- **Ultimate Phase to increase the capacity**

Moreover, the daily maintenance is easy to safely carry out.

**【No. 8】**

**Safer System in an Emergency**

Path for the daily maintenance; it will be utilized in case of evacuation!

Moreover, the daily maintenance is easy to safely carry out.
Ten (10) Merits of **NTS**

【No. 9】

**Strong & Safer System w/ simple structure against natural disasters such as Typhoon, Earthquake, or Road flooding**

Direct access to the upper floor of the building!

Ten (10) Merits of **NTS**

【No. 10】

**No Driver needs for Operating Trains**
### Summary of the Comparison among Urban Transport Systems

<table>
<thead>
<tr>
<th>CONTENTS</th>
<th>Mass Transit</th>
<th>Medium Capacity Transit</th>
<th>Small-Medium Cap. Transit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ordinal Train</td>
<td>Subway</td>
<td>NTS (Standard, Large)</td>
</tr>
<tr>
<td>0</td>
<td>effective alleviation of traffic congestion</td>
<td>⊗</td>
<td>⊗</td>
</tr>
<tr>
<td>1</td>
<td>Transport capacity</td>
<td>⊗</td>
<td>⊗</td>
</tr>
<tr>
<td>2a</td>
<td>Environment-friendly (power consumption)</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>2b</td>
<td>Noise, vibration, swing (left &amp; right)</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>3a</td>
<td>Ease to turn around</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>3b</td>
<td>Structure simplicity (girder, OH-catenary)</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>4</td>
<td>Life-cycle costs (land/depot, civil, E&amp;M, O&amp;M)</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>5</td>
<td>Necessity of land acquisition (line)</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>6</td>
<td>Easy changing the vehicle configuration</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>7</td>
<td>Emergency evacuation</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>8</td>
<td>Automated operation (no driver system)</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>9</td>
<td>Safer in the road flooding</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

[Legend] ⊗: excellent/standardized; ⊗: good/actual case(s); A: acceptable/possible; ×: difficult/impossible
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### Comparison of the Cars in NTS and Monorail

<table>
<thead>
<tr>
<th>Contents</th>
<th>Large NTS</th>
<th>Standard (Small) NTS</th>
<th>MRT (Railway/Subway)</th>
<th>Large Monorail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td><img src="image1" alt="MIA Mover Miami, USA" /></td>
<td><img src="image2" alt="Seaside Line Yokohama, Japan" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum load of each car</td>
<td>28 ton</td>
<td>18 ton</td>
<td>72 ton</td>
<td>44 ton</td>
</tr>
<tr>
<td>Car Dimension</td>
<td>Length</td>
<td>Width</td>
<td>Height</td>
<td>Length (3.74 m)</td>
</tr>
<tr>
<td></td>
<td>12.0 m</td>
<td>2.8 m</td>
<td>3.8 m</td>
<td>15.2 m</td>
</tr>
<tr>
<td></td>
<td>8.00 m</td>
<td>2.47 m</td>
<td>3.34 m</td>
<td>2.98 m</td>
</tr>
<tr>
<td></td>
<td>16-20 m</td>
<td>3.0 m</td>
<td>4.1 m</td>
<td>5.2 m</td>
</tr>
<tr>
<td>Car Capacity (approx.)</td>
<td>120</td>
<td>70</td>
<td>150-160</td>
<td>150</td>
</tr>
</tbody>
</table>