4. ETHNIKIS ANTISTASIS STREET

4.1. Case Study Area and Character Sections

Case Study Area

Ethnikis Antistasis street is a significant one-way arterial street of Greater Thessaloniki Area. Passing through Kalamaria, it divides the Municipality’s area into two sections, interrupting the urban space. Its total length is approximately 2,700m, while the Case Study segment is 940m long.

Ethnikis Antistasis street is one of the two main entrances to Greater Thessaloniki Area from South direction. It connects the city with Macedonia International Airport and the nearby coastal areas.

Due to the above, Ethnikis Antistasis street serves very high traffic volumes (including public transport). The importance of the street as well as the high traffic volumes attract investors and businesspeople, therefore, the main use of the buildings facing the street is commercial. Residences and business offices can be found on the upper floors, and mostly at the back side of the building blocks.

Character Sections

For the purpose of the project, Ethnikis Antistasis Street Study Area is divided in two Character Sections.

Section 1, as shown on the map, runs between Egeou and Megalou Alexandrou Street (690m), and is mainly characterized by a higher building density and higher vitality.

Section 2, starts from Megalou Alexandrou Street up to Erithrou Stavrou Street (250m) and is less densely built. This section is located at the south edge of the built area of the city.
4.2. Street Attribute Descriptors

4.2.1 Built Form

**Buildings**

Building Height: The average height of rooftop is 13 to 14m in both sections.

Spacing of Buildings: Ratio of frontage to space between frontages is 4.86 for Section 1 and 1.50 for Section 2. The density of buildings is much higher in Section 1 than in Section 2.
Inactive Frontages:

Percentage of inactive to active building line is 26% for the whole area, 20% for Section 1 and 42% for Section 2.

Buildings facades to Ethnikis Antistasis Street are almost all active. Some inactive frontages appear on the side streets.

Doorways:

The number of doorways opening onto the public realm is 103 for Section 1 and only 25 for Section 2.

The number of doorways per 100m is 8.1 for the whole case study, 8.8 for Section 1 and 6.1 for Section 2.

The majority of them are shop doorways to retail shops, since commercial is the dominant land use type along Ethnikis Antistasis street.
Historically important buildings:

There are no historically important buildings in Ethnikis Antistasis Street.

Quality of Built Fabric:

Both character sections present a good picture in terms of the quality of built fabric: reinforced concrete and masonry are the basic materials used, due to strict Greek building regulations and seismic code. Decoration elements in the new residential buildings are the balconies and windows, as well as the various colours of facades. Old buildings are maintained rather well. There are numerous advertisement panels that sometimes outweigh technical elements such as traffic signs.
Space Between Buildings

Primary Descriptors

<table>
<thead>
<tr>
<th>Street Width</th>
<th>Width of side space on Northeast side of str. (m)</th>
<th>Width of side space on Southwest side of str. (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>6.4 (6.5-Section 1 6.0-Section 2)</td>
<td>6.9 (7.0-Section 1 6.6-Section 2)</td>
</tr>
<tr>
<td>Narrowest</td>
<td>4.8 (5.6-Section 1 4.8-Section 2)</td>
<td>2.9 (3.4-Section 1 2.9-Section 2)</td>
</tr>
<tr>
<td>Widest</td>
<td>7.6 (7.6-Section 1 6.7-Section 2)</td>
<td>8.4 (8.4-Section 1 7.9-Section 2)</td>
</tr>
</tbody>
</table>

The distance between opposing building lines is 29 m in Section 1, and 26 m in Section 2.

Side Space Width:

The following photos are taken in successive points, walking from Section 1 to Section 2:

- Section 1
- Section 1
- Section 1
- Section 1
- Section 1
- Section 2
- Section 2
- Section 2

Median Strip:

Ethnikis Antistasis Street does not have median strip.

Width Between Side Space:

The width between side spaces is 14m along the whole length of the street. Although parking is prohibited along the street, there are illegally parked cars in both sides, which eventually reduce the effective carriageway width by 4 meters.
Green has a minor influence on the street space. Trees are planted in rows on both sidewalks all along the street. There are no green areas or parks close to the street.

Trees appear sporadic in the first half of Section 1, and then become denser in the second half and eventually have an influence on the street space in Section 2. Greenery is evenly distributed between the two side spaces.

Ethnikis Antistasis Street is paved by asphalt. The pavement of the carriageway is in good condition, with sporadic patches and cracks.

The pavement markings are not adequately maintained. There are no special elements of street furniture at pedestrian crossings.

The sidewalks are covered with slabs.

There are no guard railings in Ethn. Antistasis street study area.

Bollards are used sporadically to prevent parking on sidewalks.

Along the street case area there are no public spaces for people to congregate.

Ethnikis Antistasis Street has a single row of street lighting in both sections. Lighting poles are placed on the Southwest sidewalk. The average distance between two successive lighting poles is 20m.

Although lighting poles are quite dense, the single lighting row is not considered sufficient to illuminate the 28m wide space between opposing building lines.

The ratio of street width to building height is 2.1 (2.1-section1 2.0-section2).

Type of green: 'cancel' = Generally for the whole street, green and other installations cancel each other.

The total average side space is 13m. The enclosure effect is observed in a low scale as the space between opposing building lines is quite wide comparing to the building height.
Transparency:

- Inactive building line: 26% (20%-section1 42%-section2)
- Number of doorways per 100 metres of building line: 8.1 (8.8-section1 6.1-section2)

Illuminated building line:
All building frontages with shopdoors on the ground floor (see map “doorways and inactive frontages”) of Ethnikis Antistasis street are heavily illuminated.
### 4.2.2 Function, Management and Regulation

<table>
<thead>
<tr>
<th>Primary descriptors</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>One-Way or Two-Way Operation:</strong></td>
<td>Ethnikis Antistasis operates as one-way street. Almost all of the adjacent streets (crossing or parallel to Ethnikis Antistasis) are one-way streets, and operate as pairs of opposite direction, as shown in the map. The two main crossing streets at the edges of Ethnikis Antistasis, i.e. Egeou and Erithrou Stavrou, have a two-way operation.</td>
</tr>
<tr>
<td><strong>Speed limit:</strong></td>
<td>The speed limit is 50 km/h.</td>
</tr>
<tr>
<td><strong>Traffic Calming Measures:</strong></td>
<td>There are no traffic calming measures taken at Ethnikis Antistasis street</td>
</tr>
<tr>
<td><strong>Number of Marked Traffic Lanes:</strong></td>
<td>Both character sections of Ethnikis Antistasis street have 4 traffic lanes. Vehicles that are parked illegally on both sides of the street restrict traffic. Most often, only 3 traffic lanes are effective.</td>
</tr>
<tr>
<td><strong>Lane Width:</strong></td>
<td>The lanes’ width is 3.5 m along the whole street.</td>
</tr>
<tr>
<td><strong>Visual Width:</strong></td>
<td>There is no visual reduction of carriageway width.</td>
</tr>
</tbody>
</table>

![Direction of traffic](image-url)
Segregation of carriageway

<table>
<thead>
<tr>
<th></th>
<th>bus</th>
<th>pedestrians</th>
<th>HOV / taxis etc</th>
</tr>
</thead>
<tbody>
<tr>
<td>separate</td>
<td></td>
<td>separate</td>
<td>in mix</td>
</tr>
</tbody>
</table>

Pedestrians use the sidewalks. Bicycles are not specially cared for and they use either the carriageway or the sidewalks. On-street illegal parking occupies space of the carriageway (2 metres at each side).

Pedestrian Crossings:
All pedestrian crossings are signalized and have zebra markings.
There are 5 signalized pedestrian crossings along the study area, every 190m in average. All of them are at junctions.
There are no pedestrian over / underpasses neither built pedestrian crossings.
Pedestrians are rarely crossing the street at non-designated routes, because the high vehicles’ speed does not allow them to do it.

Signal Junctions:
There are 5 signalized junctions in Ethnikis Antistasis street study area.

Roundabout Junctions:
Ethnikis Antistasis Street has no roundabout junctions.

Other Junctions:
Ethnikis Antistasis Street has 9 non-signalized (priority) junctions.
Pedestrian zebra crossings are not provided at these junctions.

On-Street Parking:
Along the study area there are no on-street legal parking spaces. Some exceptions are made for special land uses that need a parking space for a certain period (banks etc) and they get a special permit.
Although on-street parking is prohibited in both sides of the street, there is one row of illegally parked cars at each side of the street, almost at all hours. At times cars park in a second row, obstructing traffic.
Municipal or Traffic Police take measure to prevent illegal parking, but enforcement is not very systematic. Therefore, during the morning and afternoon peak hours, parked vehicles reduce the street capacity.
In order to accommodate parking demand, the Municipality considers to allow parking on the Southwest side of the street; and to enforce, in the same time, parking prohibition on the Northeastern lane, which is used by the public transport buses.
Cycle “Lanes” & Cycle Parking:

There are no special facilities for cyclists.

Bus Stops:

On Ethnikis Antistasis Street study area there are 4 bus stops. There is approximately one bus stop every 250m.

Most of the bus stops in the street study area are well indicated by a special sign and provide shelter with a bench and a map of bus routes.

Illegally parked cars on Northeast street side and sometimes in front of bus stops obstruct buses.

Section 1- Typical bus stop with shelter 1
4.2.3 Patterns of Use

Traffic

Primary Descriptors

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Vehicle Flow</td>
<td>Average Daily traffic flow (24 hour AADT) by vehicle type:</td>
</tr>
<tr>
<td></td>
<td>Cars/vans</td>
</tr>
<tr>
<td></td>
<td>35,100 in Section 1</td>
</tr>
<tr>
<td></td>
<td>31,000 in Section 2</td>
</tr>
<tr>
<td></td>
<td>Vans/trucks &gt;3.5T</td>
</tr>
<tr>
<td></td>
<td>370 in Section 1</td>
</tr>
<tr>
<td></td>
<td>330 in Section 2</td>
</tr>
<tr>
<td></td>
<td>Buses</td>
</tr>
<tr>
<td></td>
<td>750 in Section 1</td>
</tr>
<tr>
<td></td>
<td>650 in Section 2</td>
</tr>
<tr>
<td></td>
<td>There is one major crossing street with significant traffic in Section 1</td>
</tr>
<tr>
<td></td>
<td>Egeou str 16,000 pcus</td>
</tr>
<tr>
<td>Peak Vehicle Flow</td>
<td>Peak Hour traffic flow along Ethnikis Antistasis street by vehicle type:</td>
</tr>
<tr>
<td></td>
<td>Cars/vans</td>
</tr>
<tr>
<td></td>
<td>2,100 in Section 1</td>
</tr>
<tr>
<td></td>
<td>1,900 in Section 2</td>
</tr>
<tr>
<td></td>
<td>Vans/trucks &gt;3.5T</td>
</tr>
<tr>
<td></td>
<td>20 in both sections</td>
</tr>
<tr>
<td></td>
<td>Buses</td>
</tr>
<tr>
<td></td>
<td>50 in Section 1</td>
</tr>
<tr>
<td></td>
<td>40 in Section 2</td>
</tr>
<tr>
<td>Vehicle Occupancy</td>
<td>The average number of persons per bus is 47 in the total study area.</td>
</tr>
<tr>
<td></td>
<td>The bus occupancy is higher in Section 1 than in Section 2, because the closer to the centre of Thessaloniki, the higher the bus occupancy:</td>
</tr>
<tr>
<td></td>
<td>50 persons per bus in Section 1</td>
</tr>
<tr>
<td></td>
<td>40 persons per bus in Section 2</td>
</tr>
<tr>
<td>Bus Reliability</td>
<td>Average bus delay is 2 minutes. Although the calculated average delay is very low, there is a significant deviation from this value, which affects bus reliability.</td>
</tr>
</tbody>
</table>
Activities

Primary Descriptors

Street Activities and Behaviour:

There are various pedestrian street activities along Ethnikis Antistasis street. During the morning hours, the residential uses generate every-day pedestrian trips, home to work, school, shops etc. Nevertheless, the peak of pedestrian trips occurs during the noon, at working days, as the study area is an important commercial area.

Pedestrians Along the Street:

Pedestrian flows along the road sections of the study area were not available from Municipal or other sources. These flows vary significantly with time of day, season and exact location, and therefore flow counts in one period and at one point only are not indicative of the real situation and representative of the pedestrians’ level of service. Nevertheless limited pedestrian flow counts were conducted according to ARTISTS’ suggested instructions of November 2002. These counts were taken during peak periods (around 11:00 Saturday) and resulted in the following figures:

- 96 pedestrians / h in Section 1
- 192 pedestrians / h in Section 2, for both street sides at the busiest point in section.

On the sidewalks, several objects such as illegally parked cars, kiosks, bus stops, trees, advertisement stands, poles (lighting, electricity, telecommunication, and traffic signals), reduce the effective walkway width. These objects obstruct significantly pedestrian mobility.

Pedestrians Across the Street:

In a similar manner, observations of pedestrian flows at peak hour (around 11:00 Saturday) were conducted and resulted in the following figures:

- 36 pedestrians/ h Section 1
- 120 pedestrians/ h Section 2

(in both directions at the busiest point in winter)

In Section 1, there is a number of pedestrians crossing the street at non-protected (traffic signals, zebra crossings etc) points, although crossing the street at these points is difficult as vehicles are moving very fast.
The most frequent land use type in the study area is mixed (commercial or office at the ground floor, and residential at the upper floors), which characterizes 58% of the buildings. This percentage is even higher for Section 1, which has a commercial character. Some residential use buildings can be found at the back and side streets, mostly at Section 2, while some big retail buildings appear at Section 1; some of them are commercial shops while others are office buildings.

<table>
<thead>
<tr>
<th>Number of workplaces on ground &amp; upper floors *</th>
<th>Total str</th>
<th>Section 1</th>
<th>Section 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail/Offices</td>
<td>133</td>
<td>106</td>
<td>27</td>
</tr>
<tr>
<td>Industrial</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Public service</td>
<td>15</td>
<td>13</td>
<td>2</td>
</tr>
</tbody>
</table>

Floor space in m² of ground & upper floors*

<table>
<thead>
<tr>
<th>Total str</th>
<th>Section 1</th>
<th>Section 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail/Offices</td>
<td>13930</td>
<td>11795</td>
</tr>
<tr>
<td>Industrial</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Public service</td>
<td>2207</td>
<td>2163</td>
</tr>
</tbody>
</table>

The upper floors use is primarily residential. There are a lot of buildings with homes and offices at the upper floors and only a few office-buildings.

<table>
<thead>
<tr>
<th>Number of workplaces on ground floor *</th>
<th>Total str</th>
<th>Section 1</th>
<th>Section 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail/Offices</td>
<td>141</td>
<td>111</td>
<td>30</td>
</tr>
<tr>
<td>Industrial</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Public service</td>
<td>6</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

The ground floor of buildings in the street study area has a retail use in the category of “Convenience” - food stores, such as supermarkets etc and “Comparison” - household goods, furniture etc.

There are no off-street parking areas of public use on Ethnikis Antistsis street. Nevertheless, most of the newly constructed buildings provide underground parking spaces for the use of residents or visitors.
4.3. Performance Indicators

4.3.1 Street Safety

The numbers of accidents presented hereby are referred to the period 1999-2001.

Total number of road deaths = 0
Seriously injured pedestrians = 0
Slightly injured pedestrians = 3
Seriously injured two-wheelers = 0
Slightly injured two-wheelers = 9
Seriously injured in motorised vehicles = 0
Slightly injured in motorised vehicles = 9

The following total numbers are given separately for the total length of the street case, as well as for the two character sections.

Serious road injuries = 0 (Section 1: 0 Section 2: 0)
Slight road injuries = 21 (Section 1:15 Section 2: 6)
Killed and injured = 21 (Section 1:15 Section 2: 6)
Accidents = 13 (Section 1: 9 Section 2: 4)

From the above is concluded that the number of serious accidents along Ethnikis Antistasis street is not very high. Most of the accidents with injuries, involve two-wheelers or pedestrians.

In Section 1, a high concentration of accidents occurs at Egeou signalised intersection, which is a very busy junction, and at the priority junction of Kazazi str.

In Section 2, accidents occur close to the Public Health Centre, located between Karavaggeli and M.Alexandrou street.
Vehicle Speed: Average speed of motorised vehicles in km/h (free flow conditions)
55-Total str 60-Section 1 47-Section 2

V85 of motorised vehicles in km/h
68-Total str 73-Section 1 51-Section 2

In free flow conditions drivers exceed speed limit in Section 1.

4.3.2 Economy

Viability: Homes (Apartments): The average rent of a 80 m² flat for one year is €4,250.
Homes (Apartments): Purchase price per owner-occupied flat is 2,050 euros per m².

As Ethnikis Antistasis street has a dominant retail character, rent and purchase price for retail shops is very high compared to other districts of Kalamaria or Greater Thessaloniki area.

Retail: Average rent price per year is € 247 per m² (estimated for 2002).
Office: Average rent price per year is € 71 per m² (estimated for 2002).

This very high rental price of retail shops in Ethnikis Antistasis is due to the commercial character of the street. The office rental price is similar to the average for Kalamaria.

Residential Population: The total population of the Study area is 4481. The population density of the area is medium, (35 m² of space per inhabitant). The population density is lower in Section 2 (43 m² of space per inhabitant), which is closer to the end of the city.

4.3.3 Noise

The noise level due to traffic along Ethnikis Antistasis street varies from 72 to 77 dB (Leq). This value exceeds the limit imposed by the Greek and European legislation for residential areas (67 dBA).

4.4. Long-Term Change

Until late 70’s there were no signalized junctions in Adrianoupoleos street. Then, traffic signals of 70sec cycle time and fixed program were installed in the major intersections. Recently, in 2002, the program changed to a new cycle time of 90 sec to conform with the rest of the signals of the Greater Thessaloniki Area, which have changed at the same time.

During the last couple of decades older buildings of 1 or 2 floors have been replaced by new taller ones (4 to 5 floors) of good built quality, decorated with balconies, windows and colored metallic parts. The commercial activity has been enhanced with new shopping centers and respectively the mobility increased significantly. Along side, the demand for parking spaces was rising and the appearance of illegal parked vehicles became common. Within the years, numerous advertisement signs have spawn in the sidewalks or were hanged on the building sides.