6. TRANSPORT IMPACT ASSESSMENT

6.1 Introduction
Arup Consulting Engineers has prepared a transport impact assessment for the proposed extension of the Pfizer Sterile Products Facility at Pottery Road, Dún Laoghaire.

The transport impact assessment considers the following:
- The traffic impact of the proposed development during the construction phase;
- The traffic impact of the proposed development during the operational phase; and
- Parking requirements.

This chapter of the EIS is divided into the following main sections as outlined below:
- The Receiving Environment;
- Characteristics of the Proposed Development;
- The Predicted Impact of the Proposed Development; and
- Proposed Remedial and Mitigation Measures.

The assessment concluded that there would be no significant impact on the road network in the vicinity of the plant, following the expansion project.

6.2 Study Limitation
The assessment has been based on the following:
- Traffic counts for turning movements at existing junctions within the vicinity of the site;
- Consultation with Dún Laoghaire-Rathdown County Council Road Planning Department; and
- Transportation proposals contained in the planning and policy documentation relevant to Dún Laoghaire-Rathdown.

6.3 Study Methodology
The study examined the existing conditions in the area in terms of the existing road network and available public transport, pedestrian and cycle infrastructure. Future public transport provision and infrastructure improvements proposed in the vicinity of the development were reviewed.

The effects that the additional traffic generated by the proposed development is likely to have on the surrounding network was assessed and junction analyses carried out.

This report has been prepared taking into account the following documents:
- Institution of Highways and Transportation publication Guidelines for Traffic Impact Assessment, 1994,
- Dún Laoghaire-Rathdown County Council Development Plan 2004-2010,
- Strategic Planning Guidelines for the Greater Dublin Area, 1998 published by Dublin City Council and the Department for the Environment and Local Government, and...

6.4 Receiving Environment

6.4.1 Site Location

The site of the proposed development is located approximately 3.5km to the southwest of Dún Laoghaire, within the boundary of the Dún Laoghaire-Rathdown County Council area. The site is located on Pottery Road, Sallynoggin. Figure 6.1 shows the location of the development site.

The total site area is approximately 10 hectares and access to the site is provided from Pottery Road. The site currently includes the existing Pfizer plant and the Cadbury Schweppes Gum Base Plant.

6.4.2 Road Junctions and Access

The Pfizer plant is located within the built up suburban Greater Dublin Area. The existing road network within the vicinity of the site, which comprises a road network of national routes, regional routes and local roads is shown in Figure 6.2.

The site is located on Pottery Road which provides a link between Rochestown Avenue to the north and Johnstown Road to the south. Rochestown Avenue forms part of the R118 which is a strategic route linking local town centres within Dún Laoghaire with one another.

Johnstown Road, to the south east of Pottery Road links to Rochestown Avenue to the north and the Cabinteely Bypass (N11) to the south. The N11 is a national route linking Dublin to the towns and villages along the East coast including Bray, Wicklow, Arklow, Gorey and Wexford. The route furthermore provides local access within the southern parts of Dublin linking Loughlanstown, Cabinteely, Cornelscourt, Stillorgan, Belfield, Donnybrook, Ballsbridge and Dublin City Centre. The N11 is also a strategic radial Quality Bus Corridor (QBC) Route.

Rochestown road intersects with Kill Lane, Kill Avenue and Abbey Road. Kill Lane provides a link to The Grange Village and the N11 at Foxrock Church. Kill Avenue provides a link to Dún Laoghaire town centre and Abbey Road links to the R113 to Blackrock.

The existing access to the Pfizer site from Pottery Road is a priority junction where all traffic movements are being provided for. Access into the site is security controlled. The width of the entry and exit lanes is in excess of 6.0m for both.

The Pottery Road/Rochestown Avenue junction is signal controlled. At this junction all traffic movements are being provided for, except the right turn movement from Pottery Road into Rochestown Avenue. This is due to the acute approach angle at which Pottery Road joins Rochestown Avenue.

The Rochestown/Kill Lane/Abbey Road/Kill Avenue junction to the north west of Pottery Road/Rochestown Avenue junction is also signal controlled and accommodates traffic movements in all directions.

The Pottery Road/Johnstown Road junction is currently being upgraded to a signal-controlled junction and additional turning lanes are being provided. More detail of the road upgrade is provided in section 6.5.2 of this chapter.

6.4.3 Existing Traffic Volumes

The existing operation of the surrounding road network in close proximity to the Pfizer site has been reviewed as part of this assessment and is summarised in this section.
Abacus Transportation Surveys Ltd. carried out classified turning movement counts in the study area.

Fully classified turning movement counts were carried out on Tuesday, 24 February 2004 at the following locations between 07:00 and 19:00, classified into 15-minute intervals. The traffic counts show that the AM Peak for the existing road network is from 08:00 to 09:00 and the PM Peak from 17:00 and 18:00. The locations at which the traffic counts were carried out are shown on Figure 6.3, and are as follows:

Site 1: Pottery Road / Pfizer Entrance junction;
Site 2: Pottery Road / Johnstown Road junction;
Site 3: Pottery Road / Rochestown Avenue junction, and
Site 4: Rochestown Avenue / Kill Lane / Abbey Road / Kill Avenue junction.

6.4.4 Junction Turning Movements

The turning movement flows during the peak periods are illustrated on Figures 6.4 and 6.5, which show that Kill Lane and Rochestown Avenue are very busy roads during the peak hours, confirming these roads as major routes between Sallynoggin Village and the N11.

Pottery Road is also a busy road during the peak hours with the majority of traffic heading towards Rochestown Avenue during the AM peak hour and towards Johnstown Road during the PM Peak Hour.

The distribution of vehicles entering and exiting the Pfizer site during the peak hours show that approximately 60% originate from and head towards Johnstown Road (south) while the remainder originate from and head towards Rochestown Avenue (north).

6.4.5 Existing Development

The existing layout of the Pfizer site is shown in Figure 6.6. As noted previously, the subject site currently includes the existing Pfizer plant of 13,006m² and the existing Cadbury Schweppes Plant of 6,503m². The site is accessed from Pottery Road via a single vehicular access serving both of the existing plants. The location of the existing entrance to the site and the internal road network is shown in Figure 6.6.

A total of circa 240 car parking spaces are currently provided for both plants. 100 are provided to the front and between the two buildings, while the remaining 140 are located in a surfaced car park at the rear of the existing complex.

Currently a total of 162 people are employed at the Pfizer plant. The working hours and shift times for these staff are as follows:

- 102 personnel work between 08:30 and 17:00;
- 6 personnel work between 22:00 and 06:00;
- 27 operators work on shift between 07:30 and 15:30; and
- 27 operators work on shift from 14:30 and 10:30.

An additional 100 people are currently employed at the Cadbury Schweppes Plant.

Based on the traffic counts carried out by Abacus Transportation Surveys Ltd. in February 2004, Table 6.1 shows the existing arrivals and departures at the plant entrance during the AM and the PM peak hour periods.
Table 6.1  Arrivals and Departures during the AM and PM Peak

<table>
<thead>
<tr>
<th>Access Point</th>
<th>AM Peak</th>
<th></th>
<th>PM Peak</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>08:00 - 09:00</td>
<td>17:00 - 18:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pottery Road</td>
<td>In 84</td>
<td>Out 15</td>
<td>In 11</td>
<td>Out 72</td>
</tr>
</tbody>
</table>

Source: Arup Consulting Engineers based on Abacus Transportation Surveyors Ltd. Traffic Count Information, February 2004

6.4.6  Pedestrian and Cycle Facilities

There is a footpath only along the western side of Pottery Road, while most other roads within the vicinity including Johnstown Road, Kill Lane and Kill Avenue also have footpaths (on one or both sides).

Pedestrian crossing facilities are provided at all the existing signal controlled junctions within the vicinity of the site.

At present, there are no cycle lanes provided along any of the roads within the vicinity of the site.

6.4.7  Public Transport Facilities

At present there are a number of bus services operating in the vicinity of the site, as shown in Table 6.2. Figure 6.7 shows the existing bus routes and bus stops within the vicinity of the Pfizer site. The bus services include local routes and Dún Laoghaire/City Centre routes.

The two services available along Pottery Road are not very frequent and therefore it is unlikely that many of the current Pfizer and Cadbury Schweppes staff make use of this service. The bus stop for these services is however located within walking distance (300m) of the entrance to Pfizer.

More frequent bus services are available along Rochestown Avenue. Although staff may be more inclined to use these services due to their higher frequency, the bus stops are located more than 1km (average acceptable walking distance) from the site, which may discourage their use.

The N11 QBC runs to the southwest of the site and numerous bus services are available on this route including amongst others the 11/11A, 45, 46A/B/C/D/E, 46X, 58 58X, 63, 75, 84, 86, 116, 117 and 746.
### Table 6.2: Dublin Bus services in the vicinity of the Pfizer Development

<table>
<thead>
<tr>
<th>Route Number</th>
<th>Morning Peak (08.00 – 09.00)</th>
<th>Evening Peak (17.00 – 18.00)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of buses</td>
<td>No. of buses</td>
</tr>
<tr>
<td>Bus Services along Pottery Road</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7B O’Connell Street to Shankhill via Mackintosh Park</td>
<td>5 services</td>
<td>5 services</td>
</tr>
<tr>
<td>59 Dún Laoghaire to Mackintosh Park</td>
<td>9 services</td>
<td>9 services</td>
</tr>
</tbody>
</table>

**Bus Services along Rochestown Avenue**

<table>
<thead>
<tr>
<th>Route Number</th>
<th>Morning Peak (08.00 – 09.00)</th>
<th>Evening Peak (17.00 – 18.00)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of buses</td>
<td>No. of buses</td>
</tr>
<tr>
<td>45A Dún Laoghaire via Sallynoggin to Bray</td>
<td>11 services</td>
<td>8 services</td>
</tr>
<tr>
<td>46 Fleet Street via Rochestown Avenue to Shankill</td>
<td>2 services</td>
<td>1 service</td>
</tr>
<tr>
<td>86 Townsend Street via Rochestown Avenue to Shankill</td>
<td>1 service</td>
<td>1 service</td>
</tr>
<tr>
<td>111 Dún Laoghaire via Rochestown Avenue to Loughlinstown Park</td>
<td>17 services</td>
<td>14 services</td>
</tr>
</tbody>
</table>

Source: Dublin Bus timetables on the web site: www.dublinbus.ie (viewed 30-3-4)

### 6.5 Future Transportation Network

#### 6.5.1 General

The Strategic Planning Guidelines set out the preferred direction for land use and transportation in the Dublin and Mid-East Regions in the period up to 2011. The key recommendation in the Guidelines is that future development should be largely concentrated in the metropolitan area, embracing the existing built-up area of the city and its immediate environments, and a number of defined Development Centres located in key transportation corridors, separated by Strategic Green Belts. This will reduce urban sprawl, optimise land use, reduce pressure on the countryside and provide a clearer demarcation between urban and rural areas. It will also create conditions amenable to the development of an efficient public transport system.

The DTO’s A Platform for Change 2000-2016 Strategy sets out a transportation strategy for the Greater Dublin Area for up to 2016. It foresees major investment in public transport networks including Suburban Rail, DART, LUAS, metro and bus and to increase services and improve accessibility to these public transport modes.

The basic planning framework for the area is the Dún Laoghaire-Rathdown County Council Development Plan 2004-2010. This Development Plan summarises the Council’s overall policies for the development of the area. In terms of transportation, it is the vision of the Council to

"promote a high quality, sustainable and integrated transport system for people and goods within Dún Laoghaire-Rathdown and to ensure and facilitate the timely provision of the transportation facilities necessary to meet the projected demands for development at appropriate locations in Dún Laoghaire-Rathdown."
In this regard it fully supports the vision and objectives of the DTO Strategy, which seeks to reduce the relative attractiveness of commuting to work by private vehicle, thereby reducing congestion and promoting public transport.

6.5.2 Proposed Road Network Improvements

Figure 6.8 shows the proposed road improvement schemes which have been identified within the Dún Laoghaire-Rathdown County Council Development Plan, 2004.

6.5.2.1 Current Road Upgrades

Johnstown Road

Johnstown Road is currently being improved. The existing road is being widened and additional turning lanes are being provided to improve the capacity at the junctions along the route.

An additional left turn flare and a right turn pocket are being provided on the southern approach to the Pottery Road / Johnstown Road junction. At the Granville Road / Johnstown Road junction a right turn pocket is being provided on both the southern and eastern approaches to the junction.

Right turn pockets are also being provided on the northern and southern approaches at the Johnstown Road / Maple Manor / Courtlands Roads junction and a left turn lane at the southern approach of the Johnstown Road / Shrewsbury Lawn junction.

The Johnstown Road approach at the junction with the N11 Cabinteely Bypass is being improved to comprise 3 lanes including a left turn flare, a right turn pocket and a straight through lane.

The above road improvements are expected to be completed before the end of 2004.

6.5.2.2 Six Year Road Objectives

According to the 2004-2010 Dún Laoghaire-Rathdown County Council Development Plan, it is the policy of the Council to implement the road objectives set out in the Six Year Road Programme. Road objectives relating to roads within the vicinity of the proposed development include:

Pottery Road

It is proposed to widen the existing lanes in both directions of the road in the future. The Council has reserved the land required to accommodate this. No specific time frame has been provided for the completion of this work.

Rochestown Avenue

This includes the upgrade of the junction with Sallynoggin Road and the junction with Johnstown Road. No specific time frame has been provided for the completion of this work.

National Road Improvements

Upgrading and completion of the orbital motorway around Dublin (M50, the Dublin Port Tunnel and the Eastern By Pass). This includes the completion of the South Eastern Motorway, Eastern By Pass to Booterstown and Dublin Port and the Eastern By Pass to the South Eastern Motorway/Sandyford Interchange.

The national road improvements should improve access to the Pfizer site on a strategic level for traffic from both the north and south. This remains however a long-term objective.
6.5.3 Proposed Public Transport Developments

The DTO Strategy *A Platform for Change*, sets out an integrated and balanced transport strategy for the Greater Dublin Area. The main elements of the above strategy as it affects the Dún Laoghaire-Rathdown Area include:

- Provision of a light rail transit system LUAS Line B from St. Stephen’s Green to Sandyford and extension of the LUAS line from Sandyford to Cherrywood;
- Upgrade of the existing DART Line;
- Development of the Quality Bus Network which will consist of radial and orbital Quality Bus Corridors and additional bus priority measures; and
- Provision of park and ride facilities at strategic locations.

6.5.3.1 LUAS Line B

LUAS Line B (St. Stephen’s Green to Sandyford Industrial Estate) is currently under construction and due for completion by Summer 2004.

It is proposed to provide LUAS stations at the following locations:

- Windy Arbour,
- Dundrum,
- Balally,
- Kilmacud,
- Stillorgan, and
- Sandyford.

The nearest LUAS station is at Sandyford which is located approximately 5km from the site.

6.5.3.2 Quality Bus Corridor

The following routes, shown in Figure 6.9, have been identified in the Dún Laoghaire-Rathdown County Council Development Plan, as quality bus corridors within the vicinity of the development:

- Rock Road – Frascati Road – Stradbrook Road – Abbey Road – Rochestown Avenue – Church Road – Wyatville – N11 Cherrywood;
- N11 (Bray Road) – Cabinteely By-pass – Dublin Road – Bray (Scheduled for completion to Dún Laoghaire-Rathdown County Council County Boundary in 2004); and
- Kill Lane – Kill Avenue – Mounttown Lower – York Road – Clarence Street – Crofton Road – Dún Laoghaire.

The site is well located to benefit from the future Quality Bus Corridor Routes identified in the Dún Laoghaire-Rathdown County Council Development Plan.

It is the intention of Dún Laoghaire-Rathdown County Council and the Quality Bus Network Design office to implement the majority of the QBN routes by the end of 2006.
6.5.3.3 DART

The DART upgrade is currently under way at all stations from Grand Canal Dock southwards. The primary aim of the DART upgrade project is to increase the peak passenger carrying capacity of the existing DART and commuter rail services in Dublin City.

The project will boost the capacity of the rail system through longer platforms, increased power supply, resignalling and improving access to stations.

It is expected that the DART upgrade from Grand Canal Dock southwards will be completed during the Summer 2004. On completion of the upgrade of the southern section of the railway line, the northern section will be upgraded in the following 18 months.

The staff of the Pfizer development may be reluctant to make use of the DART service due to the distance from the nearest DART Station which is the Glenageary Station, located more than 2km away from the site.

6.5.4 Cycle Infrastructure

It is the objective of the Council to establish a complete network of cycle routes throughout the County, which will be integrated with the Strategic Cycle Network identified by the DTO for the greater Dublin area.

The Dún Laoghaire-Rathdown County Council Development Plan has identified a proposed cycle route network within the county council area. Within the vicinity of the site the cycle route includes:

- Johnstown Road – this route is currently being constructed with the upgrade of the road.
- Rochestown Avenue
- Kill Lane / Kill Avenue, and
- N11 Cabinteely By Pass.

The location of the proposed cycle network in the vicinity of the Pfizer site is presented on Figure 6.10.

6.6 Characteristics of the Proposed Development

6.6.1 Proposed Development

The proposed development of the site is shown in Figure 6.11. It is proposed to construct two additional production and warehouse building, a central utilities building and some smaller buildings on the existing Pfizer site.

A new car park with a capacity of 379 parking spaces will be built to replace the existing car parking on site. Bicycle parking will be provided. The existing entrance to the plant, located currently between the two main buildings will be relocated to the north of the existing Cadbury Schweppes Plant and will provide direct access to the proposed new car park. The existing site entrance will be for use by emergency services vehicles only.

A service yard will be provided at the northern side of the new warehouse and delivery vehicle traffic will be concentrated mainly on the service road running to the north of the existing Cadbury Schweppes Plant.

Table 6.3 shows the existing and expected future number of staff employed at the development:
Table 6.3 Existing and Future Staff Estimations

<table>
<thead>
<tr>
<th></th>
<th>Existing Pfizer</th>
<th>Cadbury Schweppes Building</th>
<th>Module 2 Expansion</th>
<th>Module 3 Expansion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>162</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Future</td>
<td>162</td>
<td>100</td>
<td>80</td>
<td>50</td>
</tr>
</tbody>
</table>

Source: Pfizer

The proposed development will result in an additional 240 staff employed on the site.

6.6.2 Vehicular Access and Circulation

The new access to the proposed development will be a priority junction on Pottery Road. As discussed in Section 6.5.2, Dún Laoghaire-Rathdown County Council proposes to improve Pottery Road in the future. The road improvement will include the widening of Pottery Road and the land between the existing road and the Pfizer fence is reserved for the road improvement. The new access to the site will not take any of the reserved land for the road improvement and will facilitate the proposed road widening works.

The proposed new access will provide an entrance to the site for both private vehicles and heavy goods vehicles (HGVs). Barriers will control access into the site and a security office will be located adjacent to an island between the entry and exit lanes.

The entrance will provide direct access to the proposed car park to the north of the existing Cadbury Schweppes Plant. The internal road network will provide circulation and access for emergency and service vehicles to buildings on the site.

6.6.3 Required Parking Provision

There are currently a total of 240 car parking spaces provided for the existing Pfizer and Cadbury Schweppes Plants. The combined floor area of the existing two plants is 19,509m². This means that currently the parking provision is approximately 1 space per 81m².

In the Dún Laoghaire-Rathdown Development Plans the parking standard for manufacturing premises is 1 space per 50m². Therefore, less parking spaces are currently provided at the site than is specified by the parking standards. However, the production plants on the site are not labour intensive.

Currently there are 262 employees but a maximum of 229 are on site at any one time due to shift times. Experience has shown that the existing number of spaces is sufficient for site parking requirements.

There will be a net increase of staff on site of 240 employees. The plant will operate 24 hours per day, 7 days a week following the proposed extension. It is expected that most of the additional employees will be on a shift. Assuming four shifts teams, there will be an 50 shift workers on site at any time and additional 40 non-shift workers. Thus there will normally be circa 320 employees on site at any time, for which the provision of 379 spaces will be sufficient.

6.6.4 Service Vehicle

The existing and estimated future number of service vehicles, which visit the site, is shown in Table 6.4. There are a total of 140 service vehicle trips a week, including heavy and light good vehicles. It is assumed that the number of trips per day is constant over a week.

Approximately 28 service vehicle trips per day take place.
It is expected that the number of service vehicle trips for the existing Pfizer Plant will remain constant in the future. However, Modules 2 and 3 will add an additional 25 trips per week. This equals to less than 5 additional trips per day.

Table 6.4 Number of Service Vehicle movements Per Week

<table>
<thead>
<tr>
<th></th>
<th>Existing Pfizer &amp; Canteen</th>
<th>Cadbury Schweppes Plant &amp; Canteen</th>
<th>Expansion Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>90</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>Future</td>
<td>90</td>
<td>50</td>
<td>25</td>
</tr>
</tbody>
</table>

Source: Pfizer

The traffic counts, which were carried out on Tuesday, 24 February 2004 for the development show that service vehicle movements are evenly spread over the course of the day with a maximum of 8 service vehicle movements per hour. This maximum number of vehicle movements per hour furthermore does not coincide with the general traffic peak hour and therefore does not have a significant impact on traffic levels on the adjoining road network.

6.6.5 Construction

The construction phase is expected to have a duration of 21 months. At its peak it is expected that 350 construction workers will be on site at a time.

The proposed new car park will be constructed in advance to accommodate the parking requirements of the construction workers.

The proposed development will also include the removal of a substantial amount of earth material from the site which will contribute to the impact of the development during the construction phase.

During the construction phase a small number of abnormal loads will be delivered to the site from Dublin Port or Dun Laoghaire Port. These may require a police escort. The abnormal loads will include the delivery of 8 large freeze dryers, which will be approximately 3-4m wide and 8m long.

6.7 Predicted Impact of the Proposed Development

The weekday peak hour periods have been considered to be the critical periods for the operation of junctions in the vicinity of the proposed development. Therefore the traffic assessment has been carried out for the AM and PM Peak hours.

The traffic counts undertaken in the vicinity of the site indicated that the AM peak hour is between 08:00 and 09:00 and the PM peak hour between 17:00 and 18:00.

The traffic assessment is carried out for three scenarios of the development including base traffic conditions, the construction phase and the operational phase of the development.

The following is an outline of the assumptions made with regard to trip generation, trip distribution and trip assignment.
6.7.1 Trip Generation

6.7.1.1 Trip Generation based on Existing Site Operation

The volume of traffic generated during the peak periods is the key determinant of the magnitude of impact of the proposed development. Trip generation calculations were based on the existing trip generation of the Pfizer plant, calculated from traffic counts.

The trip generation rates were calculated per employee with working hours and shift changes taken into account.

There are currently a total of 162 people working within the Pfizer plant. The working hours for these personnel are shown in Table 6.5. Information on the working hours and shifts for the Cadbury Schweppes Plant was not available. To ensure a robust analysis, it was therefore assumed that the working hours and shifts distribution of the 100 employees of the Cadbury Schweppes Plant were similar to those of the Pfizer employees.

Table 6.5 Work Hour and Shifts

<table>
<thead>
<tr>
<th>Work Hours</th>
<th>Pfizer Plant</th>
<th>Cadbury Schweppes Plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30 - 17:00</td>
<td>102</td>
<td>63.1%</td>
</tr>
<tr>
<td>22:00 - 06:00</td>
<td>6</td>
<td>3.7%</td>
</tr>
<tr>
<td>Shifts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>07:30 - 15:30</td>
<td>27</td>
<td>16.6%</td>
</tr>
<tr>
<td>14:30 - 22:30</td>
<td>27</td>
<td>16.6%</td>
</tr>
<tr>
<td>Total</td>
<td>162</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source Arup Consulting Engineers & Pfizer

The majority of employees work between 08:30 and 17:00. This coincides with the AM and PM peak hours as indicated by the traffic counts carried out.

Therefore, the existing trip generation rate should primarily be based on the number of employees arriving at and departing from the site during the AM and PM peak hours. This is 165 employees. However, to allow for a degree of flexibility to this assumption, it was assumed that the peak hour trips also include a number of employees working on shift. On this basis the trip generation rates of the existing site is based on 172 employees entering and exiting the site during the peak hour period.

Table 6.6 shows the number of trips recorded during the AM and PM peak hour periods for both the in and out movements, based on traffic counts at the entrance to the site. By dividing the number of trips by the number of employees, trip generation rates per employee are obtained. Table 6.1 (Arrivals and departures during the AM and PM peak) shows for example that 84 vehicles entered the site during the AM peak period which gives a trip generation rate of 0.5.
Table 6.6: Existing Site Operation AM and PM Peak Trip Generation

<table>
<thead>
<tr>
<th>Plant</th>
<th>No.</th>
<th>AM Week 08:00 - 09:00</th>
<th>PM Week 17:00 - 18:00</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>In</td>
<td>Out</td>
</tr>
<tr>
<td>Pfizer and Cadbury Schweppes</td>
<td>172</td>
<td>0.5</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Source: Abacus Transportation Surveys & Arup Consulting Engineers

6.7.1.2 Trip Generation during Future Site Operation

The future trip generation of the site is again based on the expected number of employees entering or leaving during the AM and PM peak hours. As shown in Table 6.7.3, the anticipated future employment numbers will include the following:

- Employees in the existing Pfizer Plant will remain constant at 162. It is assumed that the work hour and shift distribution will be similar to that of the existing Pfizer plant;
- Employees in the Cadbury Schweppes Plant will also remain constant at 100. It is assumed that the work hour and shift distribution will be similar to that of the existing Pfizer plant.
- An additional 240 employees are expected to work in the future Modules 2 and 3, of which 200 will be working on shift and 40 working normal hours. There will be four shifts with 50 people per shift.

On this basis, the future trip generation of the site is based on a total of 225 employees as shown in Table 6.7.

Table 6.7: Future Site Operation AM and PM Peak Trip Generation

<table>
<thead>
<tr>
<th>Plant</th>
<th>No.</th>
<th>AM Week 08:00 - 09:00</th>
<th>PM Week 17:00 - 18:00</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>In</td>
<td>Out</td>
</tr>
<tr>
<td>Pfizer, Cadbury Schweppes &amp; Modules 2&amp;3</td>
<td>225</td>
<td>0.5</td>
<td>0.1</td>
</tr>
<tr>
<td>Employees</td>
<td>225</td>
<td>113</td>
<td>23</td>
</tr>
</tbody>
</table>

Source: Arup Consulting Engineers & Pfizer

6.7.1.3 Trip Generation During Construction

It is expected that the contractor workforce during the construction phase will peak at 350 people.

There is no information available on the trip generation of construction workers and therefore this was based on first principles. To ensure a robust analysis, it is assumed that the trip generation of the majority of construction workers will coincide with the AM and PM peak hour periods as shown in Table 6.8. This is conservative, as construction working hours typically start before the morning peak traffic periods and generally extends beyond the evening peak period.
Table 6.8: Construction Traffic AM and PM Peak Trip Generation

<table>
<thead>
<tr>
<th>Plant</th>
<th>No.</th>
<th>AM Week (08:00 - 09:00)</th>
<th>PM Week (17:00 - 18:00)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>In</td>
<td>Out</td>
</tr>
<tr>
<td>Construction workers</td>
<td>350</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trps Rate (per worker)</td>
<td></td>
<td>0.7</td>
<td>0.1</td>
</tr>
<tr>
<td>Trps</td>
<td></td>
<td>245</td>
<td>35</td>
</tr>
</tbody>
</table>

Source: Abacus Transportation Surveys & Arup Consulting Engineers

Trip generation during the construction phase will also be increased by the expected earth moving to take place within this period. Circa 20,000m³ earth material will be removed from site.

If it is assumed that 10 tonne trucks are used for the removal, and that 1m³ of spoil weighs 1.8 tonnes, a total of 3,600 journeys have to be made, each comprising both an entry and exit trip of the site, which equals a total of 7,200 trips.

It is estimated that the earth moving will take place over a time period of 5 weeks, 5.5 days per week, 12 hours a day. It is assumed that work will be carried out at a constant rate during this period. On this basis, the estimated trip generation for earth moving during construction is shown in Table 6.9.

Earth moving will take place at the beginning of the construction phase when very few construction workers will be on site.

Table 6.9: Earth Removal AM and PM Peak Trip Generation

<table>
<thead>
<tr>
<th>Plant</th>
<th>No.</th>
<th>AM Week (08:00 - 09:00)</th>
<th>PM Week (17:00 - 18:00)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>In</td>
<td>Out</td>
</tr>
<tr>
<td>Earth moving</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Trips</td>
<td>7,200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Working Hours</td>
<td>313</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trips per Hour</td>
<td>23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCU Conversion Factor</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trps</td>
<td></td>
<td>45</td>
<td>45</td>
</tr>
</tbody>
</table>

Source: Arup Consulting Engineers & Pfizer
PCU – Passenger Car Units

6.7.2 Trip Distribution

6.7.2.1 Operational Phase

The assumed trip distribution for trips generated by the proposed development during the operational phase was based on the traffic distribution patterns of existing traffic within the vicinity of the Pfizer site. For this purpose, the traffic counts carried out by Abacus Transportation Consultants Ltd. were used. Figures 6.12 to 6.13 (in appendix 6.1) show the assumed trip distribution for the AM and PM Peak hour periods.

Figure 6.12 shows that during the AM peak hour, the trip distribution for traffic arriving at the site is almost equal from both directions on Pottery Road, while for traffic departing from the site the majority is left turning traffic towards the junction with Johnstown Road, from where traffic distribution is almost equal in both directions.
Figure 6.13 shows that during the PM Peak hour, the trip distribution of the traffic is almost a reverse of that of the AM Peak hour, with the majority of traffic arriving from the Johnstown Road direction while the trip distribution for traffic departing the development is again almost equal.

6.7.2.2 Construction Phase

The trip distribution for trips generated by construction workers and staff during the construction phase is assumed to be similar to that of the operational phase.

A different trip distribution however, is assumed for the earth removal traffic. To date, the location for disposing of the excavated material has not yet been identified. It is however assumed that the location for disposal of excavated material will be reached by driving along the N11 and that earth removal vehicles will follow the shortest route to the N11. Therefore, the AM and PM trip distribution for earth removal traffic follows the same route as shown in Figures 6.14 and 6.15 (in appendix 6.1).

6.7.3 Trip Assignment

6.7.3.1 Operational Phase

Figures 6.16 and 6.17 (in appendix 6.1) represent the background traffic in 2006 for the AM and the PM peak hours. Background traffic is traffic on the road in absence of the development traffic. A traffic growth rate of 5% was applied to the 2004 traffic figures to arrive at a 2006 base level, in accordance with the traffic growth forecast indices of the NRA’s ‘Future Year Growth Forecasts for Ireland 2002’. This represents the base scenario, which is used to compare the impact of the development traffic on the surrounding road network.

Figures 6.18 and 6.19 (in appendix 6.1) therefore represents the background traffic plus development traffic in 2006 for the AM and PM peak hours.

6.7.3.2 Construction Phase

Figures 6.20 and 6.21 (in appendix 6.1) represents the background traffic in 2005 for the AM and the PM peak hours. A traffic growth rate of 3% was applied to the 2004 traffic figures to give that of 2005, in accordance with the traffic growth forecast indices of the NRA’s ‘Future Year Growth Forecasts for Ireland 2002’. This represents the base scenario, which is used to compare the impact of the construction traffic on the surrounding road network.

Figures 6.22 and 6.23 (in appendix 6.1) represent the background traffic plus the existing traffic generated from the Pfizer plant, and construction traffic.

6.8 Junction Analysis

In urban conditions generally it is the road junctions rather than the roads linking junctions that are the key determinant of road network capacity. Impact assessments therefore focus on the impact of traffic generated by the development on junctions in the area surrounding the site. Details of the analysis of the junctions are provided in appendix 6.2.

6.9 Mitigation Measures

6.9.1 Mitigation during Construction Phase

The most significant traffic impact of the proposed development will occur during the construction phase. This is due to the trip generation of the expected 350 construction workers on site combined with that of the existing Pfizer and Cadbury Schweppes plants.
The contractor will be required to prepare a construction traffic management plan in consultation with Dún Laoghaire-Rathdown County Council. The construction traffic management plan will specify haulage routes to and from the site, keeping HGV traffic to designated suitable roads in the area.

6.9.2 Mitigation Measures during Operational Phase

The impact of the traffic generated by the operational phase on the surrounding road network will not be significant and no mitigation measures are required. Nevertheless, Pfizer plans to implement a mobility management plan for the site with the focus of promoting more sustainable modes of transportation, other than the car, amongst its employees. Such a Plan would entail the following:

- Review of the existing and future transportation framework within the vicinity of the development;
- Review of the existing travel patterns of staff employed at Pfizer;
- Development of a sustainable travel strategy which may include the promotion of public transport, establishment of a car share scheme, ensure footpaths are safe and well lit, and the appointment of a mobility management coordinator amongst others; and
- Setting of realistic mode share targets based on the findings of the previous steps outlined above.

The Pfizer site will become more accessible by non-car modes of transport in the future when the planned pedestrian and cycle route network and new bus routes are introduced in the vicinity of the site. This will facilitate the implementation of the mobility management plan.

6.10 Residual Impact

During the construction phase, it is expected that in the PM peak hour there will be queues of departing cars on the site access road, within the site. All public roads and junctions in the vicinity of the site are expected to operate within capacity during the construction phase.

No significant residual impact is expected during the operational phase.

6.11 References

IHT, London


7. CONSTRUCTION ACTIVITIES

7.1 Introduction

This chapter describes the construction operations and phasing for the proposed development and outlines the measures to be taken to ensure that the impact of the construction activities on the environment is minimised.

It is anticipated that, with the proper management, the construction phases of the development will have no significant or long-term impact.

7.2 Duration and Phasing

Construction activities for the proposed project will include the following:

- site development in the form of topsoil and tarmac stripping,
- bulk excavation,
- demolition works consisting of breaking out existing areas of hard-standing, kerbing and fencing,
- construction of piled foundations (using augured piles),
- installation of drainage and underground services,
- erection of the building,
- steelwork in the form of gantries, pipe racks and walkways,
- mechanical installation including process equipment, tanks, pipe work, pumps, refrigeration and air handling equipment,
- electrical installation works including cabling, instrumentation, control systems, power supply and electrical panels,
- installation of fire safety systems, and
- miscellaneous works, including external lighting, road paving and landscaping.

It is anticipated that construction works will take 21 months, however the external envelope of the proposed buildings will be completed after 11 months. Commissioning, validation and licensing of the plant is likely to be carried out over a further 18 months. The construction of production module 3 may be undertaken later than the other elements of the project.

7.3 Site Preparation

Site preparation will consist of the bulk excavation of the existing material over the proposed expansion area. The total quantity of excavated material is estimated to be approximately 60,000 cubic metres. Excavated material will be reused on site as fill, topsoil for landscaping, and to create berms where feasible and the material is suitable. Where onsite re-use is not an option, an off site re-use solution will be sought for suitable material. Should this not be possible or the material is unsuitable, the excavated material will be removed to a licensed disposal facility. It is expected that circa 20,000m³ will be removed from site. This would require 23 truck journeys per hour for approximately 5 weeks.
It is expected that some of the unsuitable material will consist of domestic waste and other organic waste, placed on the site in the past. The classification of this material to determine the appropriate disposal option is described in more detail in chapter 13 of this EIS, *Soils, Geology, Surface Water and Groundwater*.

The impact on traffic during the construction phase is assessed in chapter 6 of this EIS, *Roads and Traffic*.

### 7.4 Construction Methods

The proposed development will be constructed following best practice in safety and efficiency. The detailed design of the project has not been completed at the time of preparation of this EIS, but it is considered that the design has been developed sufficiently to discuss the potential environmental impacts of the proposed construction methods.

It is expected that the buildings will have augered pile foundations. The floor slabs will be of reinforced concrete.

The buildings superstructures will be generally steel framed, with concrete floors and stud partition internal walls. External walls will generally consist of insulated architectural cladding panels with integral glazing. The roofs will typically be a roofing membrane, on insulation, on metal deck, on steel purins.

### 7.5 Materials Source and Transportation

The selection and specification of construction materials will be informed by local availability of these materials. Within the necessary constraints of performance, durability and cost, construction materials will be sourced from local suppliers and manufacturers where possible.

### 7.6 Employment

Throughout the construction phase there will be some variation in numbers working on site. The construction manpower peak will be 350. Temporary office accommodation and other construction facilities will be installed in the northern section of the site, local to the construction work. Refer to Figure 7.1 for an indicative layout of the construction compound.

The construction site will be separated from the operational activities of the existing facility by fencing. Where work has to be undertaken within operational areas of the existing facility, a work permit system will be implemented.

The co-ordination of people and materials on site will be one of the key activities throughout the construction phases. In order to ensure that construction workers do not create any disruption of the normal ongoing operations of the existing plant, there will be a requirement that the building contractor provide adequate site supervision to co-ordinate, monitor and enforce site regulations.

Normal construction working hours will be observed (08.00 – 20.00 Monday to Friday; 08.00 – 16.00 on Saturday). It may be necessary to work overtime (including at night and weekends) at certain stages. Working outside normal hours may be necessitated through considerations of safety or weather and sub-contractor availability. Heavy or noisy construction activities will be avoided outside normal hours and the amount of work outside normal hours will be strictly controlled.