

## 8 HUMAN ENVIRONMENT – SOCIO-ECONOMIC

### 8.1 Introduction

This section examines the potential socio-economic impacts from the proposed pipeline project on population and the main economic activities of the areas along the route corridor. It covers the existing nature of the environment at and predicts the impacts that may be expected and the measures proposed to mitigate these effects.

### 8.2 Study Area

The assessment area has been defined with reference to the potential for impact from the proposed scheme which is typically limited to the boundary of the pipeline corridor and the availability of relevant information. In terms of socio-economic data, the smallest legally defined administrative area for which the Central Statistics Office (CSO) releases census results is the Electoral Division (ED). The proposed pipeline route corridor passes through, or is within 500m, of 25 EDs, as illustrated in Figure 8.1. The distance of 500 m from the pipeline corridor was deemed as a sufficient study area to determine the significant direct and indirect socio-economic impacts arising from the proposed development. 23 of the 25 EDs are located within the administrative boundary of DCC; with the remaining two falling within FCC. The area covered by these 25 EDs forms the appraisal area for this section of the EIS.

### 8.3 Methodology

In order to assess the existing socio-economic environment of the area, a desk-top study was undertaken. The potential positive and negative impacts of the project on population and economic activity, both directly and indirectly, were assessed.

Literature and data sources reviewed as part of this appraisal included:

- Central Statistics Office: Census 2011
- Central Statistics Office: Census 2006
- The Dublin City Development Plan 2011 – 2017
- Fingal County Council Development Plan 2011 - 2017
- Google Earth/OSI Orthophotography
- Grow Dublin Taskforce: Destination Dublin – Collective Strategy for Tourism Growth to 2020 (2013)
- Fáilte Ireland: Cultural/Historic Visits in 2011
- Fáilte Ireland: Visitors to Tourist Attractions 2008-2012
- Dublin Airport Authority Annual Reports 2009 & 2013

The census results are classified into 15 themes:

**Table 8.1: Census Data Classifications**

Theme	Description
Theme 1	Sex, Age and Marital Status
Theme 2	Migration, Ethnicity and Religion
Theme 3	Irish language
Theme 4	Families

Theme	Description
Theme 5	Private Households
Theme 6	Housing
Theme 7	Communal Establishments
Theme 8	Principal Status
Theme 9	Social Class and Socio-Economic Group
Theme 10	Education
Theme 11	Commuting
Theme 12	Disability, Carers and General Health
Theme 13	Occupation
Theme 14	Industries
Theme 16	PC and Internet Access

Themes 1, 8 and 11 were considered relevant to the analysis of the proposed pipeline corridor as they indicate population trend and density, employment or educational activity and commuting patterns of the impacted population. In addition to the ED, census data are also available aggregated to administrative county and provincial boundaries. The data for the study area were compared to those of the wider council and regional areas to ascertain if they were typical of the general trend for the wider area and to identify where atypical values occurred. These atypical areas were reviewed to determine if they would be more susceptible to potential positive and negative impacts from the proposed scheme.

Tourism was included in the appraisal of this section as it can positively impact on the population numbers and the economy of an area. Information for this appraisal was drawn from Fáilte Ireland reports. The presence of the airport was also considered, as one of the primary economic activities in the area and given that the proposed fuel pipeline will service this facility. DAA annual reports and the DCC and FCC development plans were reviewed in this context.

Following the description of the baseline environment, the positive and negative impacts of the proposed pipeline corridor on the human environment were assessed.

## 8.4 Existing Environment

### 8.4.1 Local Population Patterns along Pipeline Corridor

In 2011 the population in the 25 EDs within 500 m of the proposed pipeline route corridor was 81,675. The majority of these were within the DCC area (75,667), with 5,998 falling within the FCC area. This figure over-represents the impacted population in Fingal, due to the larger size of the ED boundaries in the FCC area. The 2011 CSO population figures were also released in the format of 1km grid squares. If this more precise dataset is used to calculate the impacted population for the Fingal area (based on an aggregation of the population in the 1km grid squares intersecting a 500 m buffer of the centreline of the proposed pipeline corridor) then the resulting figure reduces to 947 persons.

Along the proposed pipeline corridor the population density is greatest in Ballybough A and North Dock A EDs with a density of 90-100 persons per hectare, as indicated on Figure 8.1. Clontarf West E and Priorswood E have the next highest density at 69-70 persons per hectare. Areas of lower population density along the pipeline corridor are the Airport (5/ha) and Balgriffin (2/ha). This is in line with the FCC lower average population density.

In the 2011 census, the population continued to grow within the DCC area (4.2%) although at a lower rate than the Dublin region as a whole (7.2%). In the same period the population in the FCC area increased by 14.2%. Table 8.2 outlines the population changes between the 2006 and 2011.

The overall population in the vicinity of the pipeline corridor grew by 11.2% between 2006 and 2011. Sixteen of the twenty-three EDs, located within the DCC area, showed a slight fall in population between 2006 and 2011 of 0.3 and 9.5%.

**Table 8.2: Population Changes by Electoral Division between 2006 and 2011 and Population Density**

2011	Population 2006 - persons (Number)	Population 2011 - persons (Number)	Actual change in population 2006-2011 (Number)	Percentage change in population 2006-2011 (%)	Area (hectares)	Density (persons / ha)
008 Ayrfield	5,344	5,395	51	1.0	89	61
009 Ballybough A	3,624	3,482	-142	-3.9	35	99
023 Beaumont C	3,044	3,106	62	2.0	60	52
024 Beaumont D	2,375	2,149	-226	-9.5	47	46
025 Beaumont E	2,099	2,001	-98	-4.7	32	63
042 Clontarf West A	3,446	3,436	-10	-0.3	70	49
043 Clontarf West B	2,398	2,316	-82	-3.4	40	58
044 Clontarf West C	3,503	3,366	-137	-3.9	105	32
045 Clontarf West D	2,087	2,066	-21	-1.0	82	25
046 Clontarf West E	2,336	2,324	-12	-0.5	33	70
050 Edenmore	2,758	2,725	-33	-1.2	58	47
058 Grace Park	5,927	5,670	-257	-4.3	124	46
059 Grange A	7,050	8,948	1898	26.9	168	53
064 Harmonstown A	2,823	2,722	-101	-3.6	61	45
071 Kilmore C	1,458	1,415	-43	-2.9	53	27
072 Kilmore D	2,258	2,082	-176	-7.8	52	40
076 North Dock A	1,200	1,303	103	8.6	14	93
077 North Dock B	3,690	6,895	3205	86.9	352	20
080 Priorswood A	1,581	1,562	-19	-1.2	174	9
081 Priorswood B	2,882	2,673	-209	-7.3	46	58
082 Priorswood C	3,557	4,491	934	26.3	89	50
083 Priorswood D	2,760	2,729	-31	-1.1	79	35
084 Priorswood E	2,731	2,821	90	3.3	41	69
001 Airport (Fingal)	1,611	4,032	2421	150.3	866	5
005 Balgriffin (Fingal)	911	1,966	1055	115.8	1038	2
<i>Total for EDs in Vicinity of Proposed Development</i>	<i>73,453</i>	<i>81,675</i>	<i>8222</i>	<i>11.2</i>	<i>3,808</i>	<i>21</i>
<b>Dublin City</b>	<b>506,211</b>	<b>527,612</b>	<b>21,401</b>	<b>4.2</b>	<b>11,761</b>	<b>45</b>
<b>Fingal</b>	<b>239,992</b>	<b>273,991</b>	<b>33,999</b>	<b>14.2</b>	<b>45,309</b>	<b>6</b>
<b>Dublin</b>	<b>1,187,176</b>	<b>1,273,069</b>	<b>85,893</b>	<b>7.2</b>	<b>92,066</b>	<b>14</b>

(Source: Central Statistics Office, Census 2011 & 2006)

### 8.4.2 Commuting Patterns

Walking accounts for the second most popular commuting choice, with on average 21% of the population in the proposed pipeline route corridor opting for this mode of travel. There is a wide spectrum of values within the study area; in Balgriffin ED only 4% travel on foot, whereas in Ballybough ED 40% commute by walking. This pattern is not entirely accounted for by proximity to the city centre, as Kilmore C and Priorswood B and C ED's have high walking rates despite their relative distance from the city centre, which may be attributed to the presence of local employment centres. Depending on whether there are Train/Dart or LUAS stations in the vicinity of the ED this mode ranges from 0 – 14% of commuter travel, with the higher percentage use clustered in the southern half of the proposed pipeline corridor. This pattern is similar to that of bicycle usage, which ranges from 2% and 3% in the northerly EDs to 14% in the North Docks ED. On average 6% of commuters cycle to work, school or college.

From Table 8.3 it can be seen that, in the proposed pipeline corridor, the car is the most widely used mode of travel for commuting to work, school and college; with 31% of the population commuting as car drivers and 11% as passengers. This pattern is reflected in the wider administrative areas and the Dublin region as a whole. This percentage increases with distance from the city centre: in Ballybough ED, which is proximal to the city centre, this percentage is only 15% car drivers and 6% car passengers, while these figure are significantly higher in the more remote EDs in FCC, where car drivers and passengers account for 42% and 25% of commuters respectively in Balgriffin ED.

**Table 8.3: Percentage of People Over 5 Years Classified by Travel Mode to Work, School or College**

Commuting Mode to Work, School or College	On foot	Bicycle	Bus, minibus or coach	Train, DART or LUAS	Motorcycle or scooter	Car driver	Car passenger	Van	Other	Not stated
008 Ayrfield	14%	3%	17%	5%	0%	38%	14.7%	3.6%	0.8%	2.7%
009 Ballybough A	40%	8%	18%	5%	1%	15%	5.7%	1.5%	2.0%	5.7%
023 Beaumont C	14%	6%	24%	4%	1%	36%	10.4%	2.5%	1.1%	2.5%
024 Beaumont D	18%	7%	22%	3%	0%	36%	9.2%	2.3%	1.1%	1.5%
025 Beaumont E	17%	9%	22%	2%	1%	35%	8.8%	2.8%	1.3%	1.4%
042 Clontarf West A	15%	8%	14%	14%	1%	32%	10.4%	2.7%	2.1%	1.3%
043 Clontarf West B	21%	6%	17%	10%	1%	30%	7.6%	3.0%	1.4%	2.9%
044 Clontarf West C	13%	7%	20%	10%	0%	34%	8.3%	1.1%	2.3%	3.5%
045 Clontarf West D	26%	10%	23%	4%	1%	24%	3.8%	1.9%	2.3%	3.5%
046 Clontarf West E	28%	10%	18%	4%	1%	28%	5.3%	1.6%	2.2%	1.9%
050 Edenmore	25%	5%	17%	7%	0%	28%	11.1%	3.3%	1.3%	2.2%
058 Grace Park	21%	9%	21%	2%	1%	33%	8.4%	1.4%	1.7%	1.1%
059 Grange A	11%	3%	16%	6%	1%	37%	19.2%	3.4%	1.1%	2.1%
064 Harmonstown A	21%	5%	20%	6%	1%	32%	9.6%	3.1%	1.0%	2.4%
071 Kilmore C	30%	5%	17%	0%	0%	26%	14.7%	1.9%	0.4%	4.1%
072 Kilmore D	18%	3%	21%	2%	2%	33%	12.0%	3.6%	1.8%	2.7%
076 North Dock A	28%	14%	19%	5%	0%	21%	3.3%	2.0%	2.5%	5.2%
077 North Dock B	37%	8%	14%	10%	1%	19%	4.8%	1.2%	1.1%	3.7%

Commuting Mode to Work, School or College	On foot	Bicycle	Bus, minibus or coach	Train, DART or LUAS	Motorcycle or scooter	Car driver	Car passenger	Van	Other	Not stated
080 Priorswood A	11%	4%	18%	2%	1%	39%	17.7%	3.9%	1.6%	2.6%
081 Priorswood B	30%	2%	27%	1%	0%	20%	11.5%	1.6%	0.7%	6.3%
082 Priorswood C	27%	3%	24%	1%	1%	24%	11.1%	1.3%	0.6%	6.4%
083 Priorswood D	22%	4%	22%	1%	1%	27%	15.3%	2.3%	1.3%	4.9%
084 Priorswood E	15%	3%	21%	1%	1%	34%	17.3%	3.6%	0.7%	2.8%
001 Airport	11%	5%	26%	1%	1%	40%	7.6%	1.0%	1.3%	6.5%
005 Balgriffin	4%	2%	8%	7%	0%	42%	24.9%	2.9%	4.5%	5.2%
<b>Average</b>	<b>21%</b>	<b>6%</b>	<b>19%</b>	<b>5%</b>	<b>1%</b>	<b>31%</b>	<b>11%</b>	<b>2%</b>	<b>2%</b>	<b>3%</b>
Dublin City	28%	7%	17%	6%	1%	26%	8.1%	1.6%	1.7%	4.2%
Fingal	15%	2%	12%	8%	1%	40%	14.1%	2.7%	2.0%	3.0%
Dublin Region	20%	5%	14%	6%	1%	34%	11.9%	2.2%	1.9%	3.3%

(Source: Central Statistics Office, Census 2011)

Bus usage ranges from 8% in Balgriffin ED to 27% in Priorswood B ED. With the exception of Balgriffin bus usage increases with distance from the city centre, on average it is higher in the proposed pipeline corridor than in the wider administrative areas and the Dublin region as a whole.

The National Transport Authority (NTA) has identified a number of strategic routes under the Bus Rapid Transit scheme including Blanchardstown to UCD, Swords/Dublin Airport (which includes the Swords Road) and Clongriffin to Tallaght (which includes the Malahide Road).

A 10 year strategy has also been published for a cycle network plan for Dublin City which includes the Malahide and Swords Roads as primary cycle network routes with a number of secondary routes connecting with them. In addition the Dublin Port Masterplan has identified the S2S cycle route which runs from the Port along East Wall Road and Alfie Byrne Road before heading along the Howth Road.

#### Commuting Times

From Table 8.4 it can be seen that, in the proposed pipeline corridor, the main commuting period is between 7.30 and 9.00 AM, which is in keeping with the administrative areas and regional pattern. The Airport ED is unusual in that 11% of commuting occurs before 6.30 am compared to 5% for the Dublin Region. This ED has significantly higher than average commuting levels up until 8.00 am, after which time it has lower than average commuter levels until 9.30 am. This is not a factor of distance from the city centre or location within Fingal CC as the pattern is not replicated in the adjacent Balgriffin ED. In general, between 7.00 and 8.30 am, the EDs in the North and West of the pipeline corridor have higher than average commuting rates, but after 9.00 AM the South and East EDs have higher commuting rates. In the 8.30 – 9.00 am period there is a wide variation in commuter rates with Priorswood B having a value of 29% compared to the Airport ED which has a 12% commuting value.

**Table 8.4: Percentage of People Over 5 Years Classified by Travel Times to Work, School or College**

Commuting Times to Work, School or College	Before 06:30	06:30-07:00	07:01-07:30	07:31-08:00	08:01-08:30	08:31-09:00	09:01-09:30	After 09:30	Not stated
008 Ayrfield	7%	7%	10%	16%	23%	22%	4.1%	8.7%	3.6%
009 Ballybough A	5%	6%	6%	10%	23%	24%	6.6%	11.9%	6.4%
023 Beaumont C	5%	6%	9%	17%	24%	21%	5.1%	9.9%	3.4%
024 Beaumont D	5%	6%	10%	17%	25%	22%	4.2%	10.1%	2.0%
025 Beaumont E	5%	6%	10%	14%	28%	21%	4.0%	10.3%	2.3%
042 Clontarf West A	5%	5%	8%	16%	27%	25%	5.0%	7.3%	1.6%
043 Clontarf West B	5%	6%	8%	15%	25%	23%	4.9%	9.1%	3.7%
044 Clontarf West C	3%	5%	8%	18%	28%	20%	5.4%	8.7%	4.0%
045 Clontarf West D	4%	7%	9%	13%	22%	24%	6.8%	9.2%	4.1%
046 Clontarf West E	4%	5%	6%	15%	26%	26%	5.6%	9.2%	2.7%
050 Edenmore	6%	6%	9%	15%	25%	21%	4.0%	11.2%	3.3%
058 Grace Park	4%	5%	9%	15%	28%	25%	4.9%	8.0%	1.5%
059 Grange A	6%	7%	10%	17%	27%	20%	3.0%	8.2%	2.8%
064 Harmonstown A	5%	6%	9%	13%	25%	24%	4.9%	9.0%	3.3%
071 Kilmore C	6%	6%	8%	11%	28%	27%	4.0%	6.1%	4.8%
072 Kilmore D	6%	7%	9%	14%	25%	21%	4.4%	8.8%	4.1%
076 North Dock A	6%	5%	5%	14%	21%	20%	8.8%	12.9%	7.2%
077 North Dock B	5%	6%	9%	13%	22%	23%	6.1%	12.1%	4.5%
080 Priorswood A	6%	7%	10%	15%	28%	18%	3.7%	7.4%	3.8%
081 Priorswood B	5%	5%	6%	13%	22%	29%	3.3%	8.5%	6.8%
082 Priorswood C	6%	6%	8%	13%	27%	22%	2.2%	8.7%	7.1%
083 Priorswood D	6%	7%	9%	13%	23%	24%	2.7%	9.6%	5.8%
084 Priorswood E	7%	7%	9%	15%	26%	20%	2.9%	9.7%	3.9%
001 Airport	11%	9%	10%	18%	17%	12%	3.9%	11.3%	7.8%
005 Balgriffin	5%	5%	9%	18%	29%	18%	3.3%	6.4%	6.5%
Average	<b>6%</b>	<b>6%</b>	<b>9%</b>	<b>15%</b>	<b>25%</b>	<b>22%</b>	<b>5%</b>	<b>9%</b>	<b>4%</b>
Dublin City	4%	6%	8%	14%	24%	22%	6.0%	10.6%	4.8%
Fingal	7%	8%	11%	16%	21%	21%	4.7%	7.8%	3.7%
Dublin Region	5%	6%	10%	16%	23%	21%	5.4%	9.2%	3.9%

**(Source: Central Statistics Office, Census 2011)**

Traffic counts were conducted at a number of locations along the route as part of Chapter 9 – Roads, Traffic and Transport to identify peaks traffic movements along the route. This is discussed in detail within Chapter 9.

*Commuting Duration*

From Table 8.5 it can be seen that, in the proposed pipeline corridor, the most frequent commuting duration is between 15 and 30 minutes, this accounts for 34% of the commuter trips. This is in keeping with the administrative areas and regional averages. The shortest journey time of less than 15 minutes is the second most frequent category; with a higher than average number of commuters from the northern EDs (Priorswood, Kilmore, Harmonstown and Edenmore EDs) within DCC having this commute duration. This seems to indicate local commutes rather than travelling to the city centre. The 30 to 45 minute category is the third most frequent category, with more southern EDs (Clontarf West, North Docks and Beaumont EDs) recording higher than average values in this category. There is a sharp drop off in the frequency of commuter times longer than 45 minutes, with commutes between 45 minutes and an hour only accounting for an average of 7% along the pipeline corridor area. Of these the more remote Fingal EDs (Airport and Balgriffin) and Grange have higher than average values. The Priorswood and Kilmore EDs have lower than average values. The percentage, in general, decreases towards the city centre, except for Clontarf West A and Beaumont D EDs, which have relatively high values. Journeys between 60 and 90 minutes have a similar pattern, with higher than average figures in the more northern EDs, lower than average figures in several of the Priorstown EDs, the values dropping towards the city centre, with the exception of Beaumont C, D and Kilmore D Eds, which have slightly higher than average values. On average only 1% of commutes are longer than 90 minutes. These range from 0.15% of the commutes in Kilmore C to 1.9% in Priorswood E.

**Table 8.5: Percentage of People Over 5 Years Classified by Travel Duration to Work, School or College**

Commuting Duration to Work, School or College	Under 15 mins	1/4 hour - under 1/2 hour	1/2 hour - under 3/4 hour	3/4 hour - under 1 hour	1 hour - under 1 1/2 hours	1 1/2 hours and over	Not stated
008 Ayrfield	22%	32%	23%	8%	7%	2%	7%
009 Ballybough A	23%	33%	21%	5%	5%	1%	11%
023 Beaumont C	21%	32%	24%	8%	6%	1%	6%
024 Beaumont D	17%	37%	25%	9%	6%	1%	5%
025 Beaumont E	17%	39%	25%	7%	6%	1%	6%
042 Clontarf West A	22%	34%	25%	9%	5%	1%	4%
043 Clontarf West B	21%	36%	24%	6%	5%	1%	6%
044 Clontarf West C	18%	37%	27%	8%	4%	1%	5%
045 Clontarf West D	20%	37%	24%	8%	4%	1%	6%
046 Clontarf West E	23%	34%	26%	7%	5%	1%	5%
050 Edenmore	26%	31%	21%	8%	6%	1%	8%
058 Grace Park	19%	40%	24%	8%	5%	1%	3%
059 Grange A	21%	32%	22%	10%	7%	1%	5%
064 Harmonstown A	29%	29%	23%	8%	5%	1%	6%
071 Kilmore C	36%	33%	16%	2%	4%	0%	9%
072 Kilmore D	25%	28%	21%	7%	8%	1%	9%
076 North Dock A	18%	39%	21%	7%	6%	1%	8%
077 North Dock B	18%	38%	25%	7%	5%	1%	6%

Commuting Duration to Work, School or College	Under 15 mins	1/4 hour - under 1/2 hour	1/2 hour - under 3/4 hour	3/4 hour - under 1 hour	1 hour - under 1 1/2 hours	1 1/2 hours and over	Not stated
<b>080 Priorswood A</b>	24%	33%	22%	6%	6%	2%	7%
<b>081 Priorswood B</b>	33%	28%	17%	5%	5%	1%	11%
<b>082 Priorswood C</b>	28%	32%	18%	5%	5%	1%	10%
<b>083 Priorswood D</b>	32%	31%	17%	5%	5%	2%	9%
<b>084 Priorswood E</b>	26%	33%	21%	6%	5%	2%	6%
<b>001 Airport</b>	18%	31%	24%	9%	7%	2%	9%
<b>005 Balgriffin</b>	22%	29%	23%	9%	8%	1%	7%
<b>Average</b>	<b>23%</b>	<b>34%</b>	<b>22%</b>	<b>7%</b>	<b>6%</b>	<b>1%</b>	<b>7%</b>
<b>Dublin City</b>	22%	35%	23%	7%	5%	1%	7%
<b>Fingal</b>	25%	27%	21%	9%	9%	2%	6%
<b>Dublin Region</b>	24%	32%	22%	8%	6%	1%	6%

(Source: Central Statistics Office, Census 2011)

#### *Economic Activity, Facilities & Services*

While the census data can give very specific social and economic information about an area, it can be misleading if taken in isolation without information about the character of the area and the context to which the statistics relate. Therefore, Table 8.7 re-interprets elements of the land use information from Chapter 7 – Human Environment – Land Use, with emphasis on economic activity, and represents it in relation to EDs, so direct comparisons can be made between the general economic activity of the EDs with the corresponding census information.

**Table 8.6: Main Economic and Social Activity along the Proposed Pipeline Corridor**

Electoral Division	Economic & Social Activity
<b>North Dock D</b>	There is significant port-and tunnel related economic activity in this area. In addition there is a hotel, church, primary school, medical centre, community centre and post office.
<b>North Dock A</b>	This small ED is the location of several commercial businesses, primarily along North Strand Road and Stoney Road. There is also a fire station.
<b>Ballybough A</b>	The eastern side of this ED, along North Strand Road, falls within the 500m buffer of the proposed pipeline route corridor. There is a range of small scale commercial activity in this area and a medical centre.
<b>Clontarf West D</b>	There is significant small scale commercial activity in this ED, focussed mainly along Fairview Road and the Marino Mart. There is, in addition, a secondary school, a college of further education, a library and Dart station.
<b>Clontarf West E</b>	The only commercial activity in this ED within the 500m buffer of the pipeline route corridor is a health centre.
<b>Grace Park</b>	Within this ED is the Marino Casino tourist attraction; there is also some mixed commercial activity along the Malahide Road, a church, community hall, two primary schools and two secondary schools along Griffith Avenue.
<b>Clontarf West C</b>	This ED is dominated by a golf course, to the south there is some commercial



Electoral Division	Economic & Social Activity
	<p>activity along the Malahide Road, the Clontarf Road and to the rear of the buildings on the Howth Road.</p> <p>Along the latter two roads there are, in addition, two churches, two community centres, a refugee centre, guest-house, secondary school, primary school, nursing home, medical clinic, Garda station and post office.</p>
<b>Clontarf West B</b>	This ED has a few commercial premises on the Malahide Road and a small number on the Clancarthy Road. In addition, it has two primary schools, a church, a health centre and a scouting centre.
<b>Beaumont E</b>	This ED has a number of small commercial premises along the Malahide Road and Collins Ave.
<b>Beaumont D</b>	This ED has a large shopping centre on Kilmore Road, a community park, a secondary school and an oratory.
<b>Clontarf West A</b>	This ED has a primary and a secondary school and a medical centre. It also has some commercial properties along the Malahide Road, St. Brigids Road and Killester Park.
<b>Beaumont C</b>	This ED has an industrial estate and a number of smaller commercial properties along the Malahide Road. It also has a church off Chanel Road.
<b>Harmonstown A</b>	This ED has a small number of commercial premises primarily at the junction between Gracefile road and Malahide Road. It has two primary schools, two secondary schools and a college of further education.
<b>Kilmore D</b>	This ED contains Coolock Village Centre, so has a range of mixed commercial activity. In addition it has a secondary school, a church and parish centre and a Garda station.
<b>Kilmore C</b>	The element of this ED within the 500m buffer of the pipeline route corridor is dominated by a large factory complex. In addition there are a few smaller commercial properties.
<b>Priorswood D</b>	There is significant commercial activity in the area of this ED within the 500m buffer of the pipeline route corridor. This comprises the Coolock Industrial Estate, the Newtown Industrial Estate (Malahide Road Industrial Estate) and the Coolock Retail Park.
<b>Ayrfield</b>	This ED contains a primary and secondary school, two churches, a community hall and a GAA pitch. In addition there is significant entertainment and retail based commercial activity off the Malahide Road in the southern end of this ED.
<b>Priorswood C</b>	This ED contains a large airport hotel located within a business park. There is also a church, a primary and secondary school and two medical centres.
<b>Grange A</b>	The commercial element of this ED consists of a shopping centre within the 500m buffer of the pipeline route corridor.
<b>Priorswood B</b>	The commercial element of this ED consists of an adult education centre, a pre-school facility and an office unit. The ED is also the location of a traveller halting site.
<b>Priorswood A</b>	The area of this ED within the 500 m buffer of the pipeline route corridor contains an industrial estate and a number of smaller commercial premises, including some tourist accommodation.
<b>Balgriffin</b>	This ED contains a number of hotel/accommodation premises along the Clonsaugh Road. However, the majority of the commercial activity is focussed in the north of the ED, in the Airport Business Park. It also has a GAA pitch and football club grounds,
<b>Airport</b>	The area of this ED within the 500m buffer of the pipeline route corridor contains a large number of airport related commercial activity, there is also some accommodation.

**Tourism**

The *Destination Dublin – Collective Strategy for Tourism Growth to 2020* notes that Dublin is underperforming against its potential. Visitor numbers have declined since Dublin’s tourism peak in 2007. Both DCC and FCC identify the potential of tourism for increased employment and economic activity. Both Councils have natural and cultural assets, providing a substantial recreational and heritage resource for tourism.

**Table 8.8: Overseas Visitor Numbers and Expenditure to Dublin (€M)**

Year	Overseas Visitor Numbers	Expenditure by All Overseas Visitors to Dublin
2012	3641	5653
2011	3739	5750
2010	3412	5422
2009	3876	5885

(source Fáilte Ireland website - research section)

Dublin as a vibrant and cultural city is especially attractive to tourists with the largest percentage of overseas tourists (37%) visiting Dublin in 2012. Dublin was the largest Irish region visited with regards to cultural/historic visits in 2011. Of the top twenty most visited tourist attractions in Ireland in 2012, fourteen are in Dublin. None of these fourteen attractions are located in close proximity to the proposed pipeline corridor. However, the Marino Casino is on this visitor attraction list and is located approximately 370m from the proposed pipeline corridor on the Malahide Road with the curtilage of this ACA adjoin the proposed pipeline corridor.

**Airport Growth**

After a peak in 2008, when annual passenger numbers in Dublin Airport reached almost 23.5 million, passenger numbers declined significantly in 2010. However, 2013 represents the third successive year of growth and the airports busiest since 2009. This rate of growth increased in 2013, with Dublin Airport having more than one million extra passengers, an increase of almost 6% to 20.2 million, ahead of the European Union average of 1%. This is reflecting the fact that 70% of the airlines operating at Dublin experienced traffic growth. Significant new capacity was secured for Dublin Airport for 2014, in terms of summer long-haul and short-haul services. There is a 17% increase in capacity to North America for 2014 and a major planned expansion in capacity to the Middle-east. Dublin Airport now serves 175 routes with 57 airlines, of this 152 are scheduled routes served by 29 airlines.

Based on figures available to-date this trend looks set to continue in 2014, with passenger numbers up by 9% in the first two months of the year over the same period last year (DAA website).

**Table 8.7: Dublin Airport Passenger Figures (M)**

Year	Passenger Numbers (million)
2005	18.4
2006	21.2
2007	23.3
2008	23.5
2009	20.5

Year	Passenger Numbers (million)
2010	18.4
2011	18.7
2012	19.1
2013	20.2

(Source: Dublin Airport Authority Annual Report 2009, 2013)

## 8.5 Summary of Key Potential Impacts

### 8.5.1 Construction Impacts

The proposed pipeline project will have no long-term direct impact on population trends in the area. A positive impact from the proposed pipeline corridor will be the generation of employment during the construction phase of the project. It is estimated that 100 direct construction jobs will be generated.

There will also be indirect employment generated from the construction phase. Indirect employment will occur when construction workers spend money in the local or wider economy on accommodation, food etc. during the construction phase.

Construction suppliers will indirectly benefit from this proposed pipeline corridor through the supply of the necessary construction materials required for the scheme. Decreases in pedestrian footfall may occur for businesses close to the pipeline corridor at times due to the presence of temporary construction fencing and pedestrian diversions. There may also be some disruption to the timing and locations of deliveries to businesses due to traffic management schemes during construction hours and the relocation of loading bays. This impact will be temporary and of short duration given that the maximum duration of works outside or adjacent to properties will be 2 days. Construction related noise, vibration and visual impacts may be relevant for businesses, such as hotels and guest houses, whose customers may be sensitive to these environmental factors. The appraisal of noise, vibration and visual impacts is addressed in Chapter 10 Noise & Vibration and Chapter 16 Landscape & Visual.

The average commuting time in the area of the proposed pipeline corridor is between 15 – 20 minutes, representing relatively local commutes. The car is the most widely used mode of travel for these journeys, with other modes of travel increasing in significance with proximity to the city centre. In the northern part of the proposed pipeline corridor, however, the commuting times are longer and car and bus usage higher than average. These commuters will experience a temporary negative impact due to traffic disruptions.

There will be no long-term significant impacts on tourism in and around the proposed pipeline corridor. However, there will be short-term impacts during the construction phase such as delays along traffic routes and a potential decrease in footfall. As the pipeline will not traverse any public parks or open space there will be no direct impacts on users of these amenities.

During the construction phase, there may be reduced pedestrian and traffic access in the area of the proposed pipeline corridor and this may affect tourists, especially tourists who are visiting the Marino Casino which is located in close proximity to the pipeline corridor. Temporary construction fencing and machinery will have a negative impact on landscape visibility; however this will be limited to the short-term construction period.

### 8.5.2 Operational Impacts

The day-to-day operations of the pipeline will not impact on the socio-economic environment along the route.

In the unlikely event of damage to the pipe and a subsequent leak the fuel will form a pool around the pipe. The fuel will stay in a liquid form and could give rise to contamination if it reaches a surface water body. Notwithstanding this, the proposed pipeline is a much safer mode of transport for aviation fuel than the

current mode of road tankers. A comparative assessment of the two modes was conducted by AMEC Environmental and Infrastructure Limited and is included in Appendix 2.1 of Volume 3 of the EIS.

This report states that a release frequency from the pipeline is a factor of over 90 times lower than for a road tanker. In fact the predicted failure frequencies of the pipeline by AMEC are 1 in 10,577 years for a pinhole leak, 1 in 14,292 years for a major leak and 1 in 34,903 years for a rupture and therefore the probability of the worst case impact on the human environment is very low.

The flash point of Jet A-1 aviation fuel is above 38 °C which is significantly above the ambient temperature of the pipeline or any ambient temperature maximum recorded in Ireland (since records began). This means that the fuel will require the application of heat to ignite it and these conditions will never normally occur for this pipeline.

Such an event will require investigative and repair works. Depending on the scale of the problem this could result in localised disruption levels similar to that experienced during the construction phase.

There will be direct employment for staff employed in the operation, monitoring and maintenance of the pipeline. There will be no negative operational impacts on tourism. From a long-term employment perspective the proposed pipeline will provide a secure and sustainable fuel supply to Dublin Airport which can cater for future demands and will support the expansion of Dublin Airport while potentially removing over 15,000 fuel tankers each year from public roads (at current demands). This is a positive indirect impact creating long-term increased employment opportunities at the airport.

Once operational the local business and mixed service facilities will not be negatively impacted by the proposed pipeline project as the pipeline will be underground and will not affect access to businesses. In fact local business and residents along the current fuel delivery transport route may be positively impacted, due to reduced traffic congestion by removing the fuel delivery HGVs from the road network.

### 8.5.3 Decommissioning and Re-Validation Impacts

The potential impact arising from the decommissioning or re-validation of the pipeline would be an uncontrolled release of the contaminated water used in the processes.

## **8.6 Mitigation Measures**

### *Mitigation by Avoidance - Design*

The socio-economic impact of the proposed pipeline will be significantly reduced through the design, construction and operation of the proposed pipeline. In relation to mitigation through design:

- The river and stream crossings will be completed using trenchless technology. This will maintain in particular the open channels of the River Tolka and Santry in their natural condition and there will be no disturbance to the bed of the river or flow within the channel itself
- Depth of cover 1.2 m
- Pipe wall thickness of 12.7 mm
- Trench backfilled with 700 mm of lean mix concrete providing protection from third party (external) interference
- External leak detection at the Tolka River. This will comprise a slotted duct installed in the pipeline trench with a sensing cable installed in the duct. The duct will have 0.5 mm wide slots to prevent it filling with silt. Other river crossings on the route are in culverts or in a concrete open channel (Santry River crossing)
- Marker tape installed in the lean mix concrete – to indicate the presence of the utility
- Cathodic protection system to prevent external corrosion
- Leak detection using instrumentation to monitor: pressure; flow; mass balance and static pressure together with automatic and manual emergency shut-down capability
- Leak detection by visual inspection which includes a fortnightly walkover of the route by operators

- Isolation valves at the beginning and end of the pipeline with two emergency shutdown valves positioned along the pipeline, one on the Malahide Road and one on the R139. The emergency shut down valves are strategically located to limit the drain down of the pipeline taking into account topography of the route
- Protection for valves and fittings
- Disturbance of the fibre optic communications cable laid above the pipe will automatically initiate an emergency shutdown of the pumps and closure of the section isolation valves.

### *Construction Mitigation Measures*

As socio-economic impacts are a result of the cumulative impacts on traffic, noise, vibration and the landscape/visual characteristics of the area, the relevant mitigation measures are covered in detail in these chapters and are briefly summarised here.

Overall, construction work will be phased and will occur at four different locations along the proposed pipeline corridor throughout the construction period. This will limit the impact on any particular section of the proposed pipeline corridor with the maximum duration at any one property being 2 days.

Mitigation measures for traffic/pedestrians relate primarily to maintaining access to businesses and households along the pipeline corridor, which should minimise disruption during the construction phase. This includes backfilling and temporarily reinstating the trench each evening, to minimise disruption to pedestrians, home owners and businesses. Details of these mitigation measures are contained in the Construction and Traffic Management Plans included in Appendices 3.3 and 9.1 of Volume 3 of the EIS.

Mitigation measures for noise/vibration effects include scheduling construction work to appropriate times of the day and the use of machinery that will limit noise and vibration outputs (e.g. electric generators). In addition to these measures construction updates will be provided to businesses and households located along the pipeline corridor. These mitigation measures will limit the negative impact on businesses and residences during the construction phase.

#### 8.6.1 Operation Mitigation

Routine operational impacts are all positive and thus no mitigation is proposed.

A set of emergency response procedures is to be put in place to cover the unlikely event of an accident with the pipeline. This safety plan will include a communications link to Dublin Port, Dublin City Council, Fingal County Council and Dublin Airport Authority. The plan will be based on existing plans used by the aviation fuel transportation industry in the UK and adapted and modified as necessary to meet local conditions and will be agreed with Dublin Fire Brigade. An outline emergency response plan is included in Appendix 3.7 of Volume 3 of the EIS.

The pipeline will be monitored by a SCADA system which will monitor the operations and provide status display, alarm and event history and logging of measurements. A PLC based alarm system will alert the on-call operator using a pager. If the operator fails to respond, a backup callout via 24 hour call centre service will be initiated to the emergency response team.

The procedure for clean-up from a leak is similar to that for a spillage from a road tanker, in relation to the use of Personal Protective Equipment (PPE), notification to statutory bodies, prevention of the spreading of fuel, absorbing fuel and removing or pumping fuel to a tanker.

#### 8.6.2 Decommissioning and Re-validation Mitigation Measures

As part of the decommissioning process the pipeline will be emptied of fuel and flushed with water sourced from mains. The water will then be collected, sampled for contaminants and disposed of either to a surface water body if uncontaminated or collected and taken offsite for disposal at an appropriate wastewater treatment facility (under licence) if contaminated. This will be conducted under licence from the respective local authority.

### 8.6.3 Do-nothing Impact

The socio-economic environment will continue to grow in the absence of the project.

### 8.6.4 Cumulative Impacts

Cumulative socio-economic impacts may arise if a leak occurs in the vicinity of a Seveso site along the route. The AMEC report (Appendix 2.1 of Volume 3 of the EIS) has assessed the impact of a domino event between the pipeline and a neighbouring site. This report concluded that the risk was “*broadly acceptable...which is a term typically used by the HAS to define the lowest risk threshold used in various forms of risk assessment*”.

## **8.7 Residual Impacts after Mitigation**

Once mitigation measures are put in place construction socio-economic impacts will be slight but will not result in permanent residual impacts. Following the implementation of the above mitigation measures the negative impact from the pipeline during day-to-day operations will be negligible. The residual impacts, post construction and during operation of the pipeline will depend on a leak occurring and the nature of this event however provided that the mitigation measures (including emergency response plan) are implemented as proposed the impacts are anticipated to be very low. A positive socio-economic impact will arise from the potential removal of over 15,000 road tankers from public roads.

## **8.8 References**

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