

2.4 Public Transport Access

2.4.1

Bus Service Provision

'Transport Assessment Guidance' states in paragraph 5.22 that 'Public transport can be calculated by a combination of analysis of timetables and maps. This should be complemented by observation of walking times to actual (or potential) bus stops.

The application site is served by existing bus services with bus stops on both sides of the A909 Cocklaw Street to the east of the M90 motorway slips as shown in photos 2.23 and 2.24.



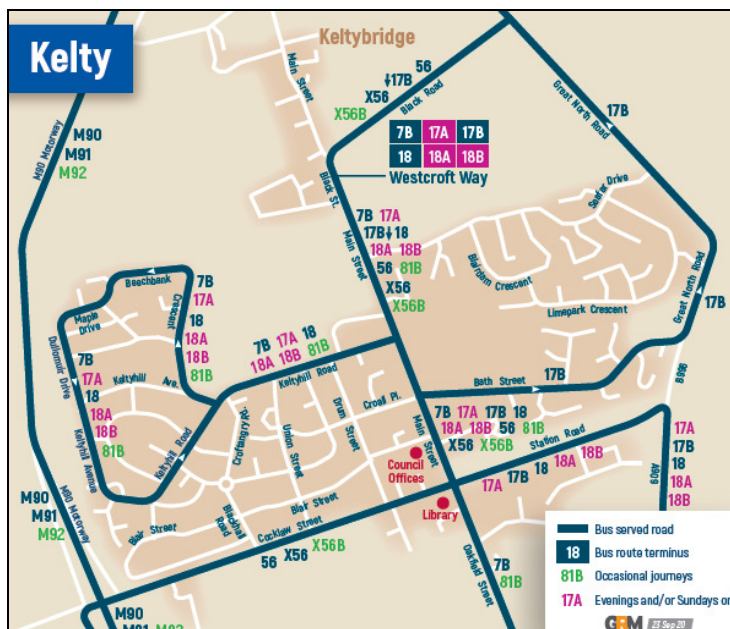
Photo 2.23 – Eastbound bus stop on the A909 Cocklaw Street



Photo 2.24 – Eastbound bus stop on the A909 Cocklaw Street

The above bus stops are shown diagrammatically in Figure 2 (Appendix A).

Travel Fife have produced a map showing bus services in Kelty as re-produced below.



Map showing bus services in Kelty

There are three scheduled bus routes serving the nearby bus stops on the A909 Cocklaw Street, with their routes and frequencies are summarised in Table 2.1.

Table 2.1 –Bus Services serving the Application Site			
Service	Route	Frequency	
		Mon – Sat	Sun
56 (Stagecoach East Scotland)	Perth – Bridge of Earn – Glenfarg – Milnathort – Kinross – Kelty – Halbeath	2 journeys per day	-
X56 (Stagecoach East Scotland)	Perth – Milnathort – Kinross – Kelty – Halbeath – Ferrytoll – Edinburgh	60 mins	2 hrly
X56B (Stagecoach East Scotland)	Perth – Bridge of Earn – Milnathort – Kinross – Kelty – Halbeath – Ferrytoll – Edinburgh	Peak hours only	-

Based on the frequency of the bus services in the table above, the application site is considered to be reasonably well served by bus.

2.4.2

Rail Service Provision

The nearest train station is Cowdenbeath. Due to the distances and the type of development proposed, a petrol filling station with ancillary retail and a freestanding restaurant including drive-thru lane, it is extremely unlikely that any staff or customers would choose to use this form of transport.

2.5 Local and trunk road network

2.5.1

Site Access

The site access, serving Kathellan Home Farm (currently closed), forms a simple priority junction with the B914.

Photos 2.25 to 2.28 show typical views of the junction of the site access and the B914, along with the existing visibility splays.



Photo 2.25 – Site access looking from the northern side of the B914 carriageway



Photo 2.26 – Site access looking towards the B914



Photo 2.27 – Leftward visibility splay along the B914 from the site access



Photo 2.28 – Rightward visibility splay along the B914 from the site access

2.5.2

B914

The B914 is a local road which runs generally in an east west direction from the M90 junction 4 slips to Saline where it meets to B913. The B914 is a single carriageway and subject to the national speed limit (i.e. 60 mph for single carriageways).

Photos 2.29 to 2.32 show typical views along the B914 in the vicinity of the application site.



Photo 2.29 – B914 looking west from the existing site access



Photo 2.30 – B914 looking east towards the existing site access



Photo 2.31 – B914 looking west towards the existing site access



Photo 2.32 – B914 looking west from the junction with the M90 westbound on and off slips

2.5.3

M90 Junction 4 slips/ B914/ A909

The M90 junction 4 interchange is via a pair of priority junctions with right turn ghost islands. The M90 overbridge (the B914/ A909) is basically a 3 lane carriageway and is also subject to the national speed limit (i.e. 60 mph for single carriageways).

Photos 2.33 to 2.37 show the M90 Junction slips and the right turn lane for the M90 southbound on slip.



Photo 2.33 – B914 looking eastwards towards the M90 Junction 4 northbound slips with the right turn lane for traffic heading north of the M90



Photo 2.34 – M90 Junction 4 northbound off slip



Photo 2.35 – A909 looking westwards with the right turn lane for the M90 southbound on slip



Photo 2.36 – M90 Junction 4 southbound off slip at the A909



Photo 2.37 – M90 Junction 4 southbound on slip

2.5.4

A909 Cocklaw Street

The A909 Cocklaw Street is a local road running generally in an east west direction from the M90 junction 4 through the centre of Kelty (becoming Station Road) to the B996 and then heads southeastwards towards Cowdenbeath and then onto Burntisland. The A909 Cocklaw Street is a wide single carriageway and is subject to a 30 mph speed limit within Kelty.

Photos 2.38 and 2.39 shown typical sections of the A909 Cocklaw Street close to the M90 Junction 4 interchange.



Photo 2.38 – A909 Cocklaw Street looking eastwards from the M90 Junction 4 interchange



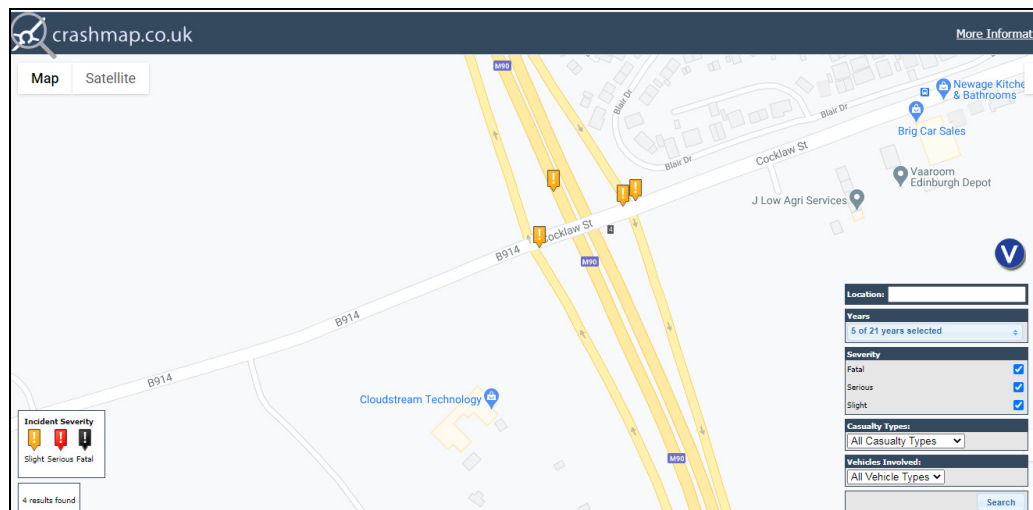
Photo 2.39 – A909 Cocklaw Street looking westwards towards the M90 Junction 4 interchange

2.6

Road Safety

Road accident data for the surrounding road network has been obtained for the last 5 years for which full data is available (2015-2019). The statistics show 3 minor accidents related to the M90 slips onto the B914/ A909 to the east of the application site.

A screenshot of the location of the recorded accident is included below (*source www.crashmap.co.uk*).



Accident data around the application site from Crashmap

Based on the relatively low number of accidents (3 no.) over a five year period, it is not considered that there is a road safety issue related to this part of the road network.

2.7**Summary**

The assessment of walking and cycling routes has shown that existing provision is generally good around the application site. Local and longer distance bus routes serve the bus stops to the east of the Kathellan Home Farm site.

The widths and speed limits along the B914, at the M90 Junction 4 interchange and the A909 Cocklaw Street have also been reviewed.

A review of the available accident data over the last five years has indicated 3 slight injury incidents and therefore does not indicate that there is a road safety concern over this part of the local and/ or trunk road network.

3 The Development and the Proposed Transport Infrastructure

3.1 The Development

A detailed layout of the proposed roadside services has been prepared by the Applicant's architect Wyeth Project Services (drawing no. WPS-SGN-002/P-05 revision I) and is shown in Appendix A.

The proposed roadside services development comprising of the erection of a 8 pump Petrol Filling Station with associated retail kiosk (circa 545 sq m) and jet washes, freestanding restaurant (circa 372 sq m) including drive-thru lane, site access, parking provision including a dedicated electric vehicle charging area, landscaping and ancillary works.

3.2 Development Accessibility

3.2.1 *Pedestrians and cyclists*

Pedestrians and cyclists will be able to access the proposed roadside services making use of the existing off site footways, core paths in the immediate vicinity of the development proposal.

Due to the type of land uses proposed, staff or customers arriving or leaving by foot or cycle are likely to be extremely low, and whilst other similar fast food outlets tend to attract lunchtime customers by foot from school children, as there are no secondary schools in Kelty then this demand will not exist.

As the existing footway on the B914 is along the northern side of the carriageway, an uncontrolled crossing of the B914 will be provided with dropped kerbs and a splitter island within the ghost island hatching as shown in Wyeth Project Service's drawing no. WPS-SGN-002/P-05 revision I in Appendix A. . From southern side of the new crossing point, pedestrian access to the petrol filling station will be via a short footway to the west and onto the station forecourt footpath, while pedestrian access to the freestanding restaurant including drive-thru lane will be directly south onto the footpaths within this part of the site.

It is noted that at the time of the Transport Assessment (TA) was prepared for the South Kelty SDA (November 2016), the Baxters Home Farm was still open and this facility was mentioned in paragraph 3.5 of that TA as being as an attraction for pedestrians from the South West Kelty SDA. However, it appears that no proposals were identified to improve the connection between the two even though there is no footway along the south side of the A909 Cocklaw Street nor across the southern side of the Motorway overbridge.

In that regard, then it is not considered appropriate for this proposal to identify and implement any improvements between the application site and the South West Kelty SDA as the existing footway provision along the northern side of the A909 Cocklaw Street and the Motorway overbridge appears to have provided satisfactory pedestrian and cyclist access during the determination of the South West Kelty SDA application.

3.2.2 *Public transport*

The proposed roadside services are located within a short walking distance of existing bus stops, to the east on the A909 Cocklaw Street, which are served by local and long distance buses routes.

This provision is considered satisfactory for the low number of staff or customers that would likely choose this form of transport to and from the proposed roadside services.

3.2.3

Vehicular access

The principle vehicular access to the proposed roadside services will be taken from the existing simple priority junction from the B914 that serves the remainder of the site.

FC-Transportation's response to the Scoping contained the following comment with regards the use of the existing access:

"The proposed vehicular access to the site would be via the existing vehicular access from the B914 which is subject to a 60mph speed limit. The layout of the junction of the existing vehicular access with the B914 shall be considered and mitigation measures proposed to address the increase in turning manoeuvres at the junction that would result from the proposed development. Eastbound vehicle speeds on the B914 can often exceed 60mph and I am concerned with the increased potential for collisions between eastbound and right-turning vehicles. I would suggest the submission of a Stage 1 Road Safety Audit as part of the TA. Given that the proposed development would likely operate 24 hours/day there may be justification for extending the existing street lighting on the B914 to a point west of the vehicular access."

To determine if this simple priority junction was suitable for the type of development proposed, a volume and speed survey was undertaken on the B914 in the vicinity of the existing access from Tuesday 1st to Monday 7th December 2020.

A summary of the results of the speed survey is included in Appendix E and indicates that the mean 85th percentile speed of eastbound traffic was 48.9mph (78.7kph) and of westbound traffic was 44.3mph (71.3kph).

Although the 85th percentile speed of eastbound traffic was lower than the speed limit of the B914 (i.e. approximately half of the 60 mph speed limit), it was recognised that just under 12% of eastbound traffic was recorded at speeds greater than 50 mph so the creation of a right turn (ghost island) lane on the B914 has been investigated.

Further to comments provided by FC-Transportation's response on the previous application that "*Transportation Development Management has a presumption against the formation of new vehicular accesses or the intensification in use of existing accesses on unrestricted distributor roads outwith established built-up areas*", the applicant is willing to fund the cost of a Traffic Regulation Order (TRO) to introduce a 40 mph speed limit along the B914 between a point west of the existing site access and to the M90 interchange and possibly as far as the 30 mph on the A909 Cocklaw Street (the exact length of the 40 mph section to be subject to discussion with the relevant department within FC).

In light of this, two right turn ghost island indicative layouts have been prepared, one for the current 60 mph speed limit (sketch 2014/SK/005) and another for the proposed 40 mph speed limit (sketch 2014/SK/006) both of which can be provided within the adopted road boundaries and/ or land under the control of the applicant

Stage 1 Road Safety Audit

The previous indicative layout, sketch 2014/SK/002, was subject to a Stage 1 Road Safety Audit that was reported in the previous Transport Assessment.

Two problems were identified within the Stage 1 Road Safety Audit - Risk of high speed rear end shunt type collisions and Risk of high speed collisions. These are repeated below.

Risk of high speed rear end shunt type collisions

Summary: The storage for eastbound right turning vehicles would effectively only hold 2 cars or a small van or truck. The DMRB design standard CD123 requires a 80m deceleration length for the right turn lane. Additional right turning vehicles will require to queue in the eastbound carriageway. The high speed of eastbound vehicles along this section of road may lead to rear end shunt type collisions with vehicles waiting to proceed ahead or turn right.

Recommendation: *It is recommended that the carriageway is widened to the west of the junction and the ghost right turn facility is extended westwards to provide additional right turn vehicle storage.*

Designer's Response: *An 80m deceleration lane is considered to be excessive for the anticipated volume of traffic expected to turn right into the proposed development from the B914 and coupled with the low 85th percentile speed plus the interaction with the existing access into the former St Ninians open cast mine, it is considered that a significantly shorter deceleration lane is more appropriate and would be subject to further discussion with FC-Transportation.*

Risk of high speed collisions

Summary: *The right turn ghost island for eastbound vehicles will block the right turn exit from the site. Driver frustration may result in them making a right turn out to the access when it is not safe to do so. This may result in high speed side swipe or rear end shunt collisions.*

Recommendation: *It is recommended that traffic count information is obtained for the B914 and anticipated traffic flows to and from the site are sourced to determine if this junction type is still appropriate for this development.*

Designers Response: *The anticipated 2 way AADT flows on the site access (minor road) along with the projected 2 way AADT flows on the B914 confirm that a priority junction with a right turn ghost island is the appropriate type of junction according to Figure 2.3.1 of CD123.*

It was not considered necessary to carry out a further Stage 1 RSA on either of the two "new" indicative layouts as above comments have been taken into account in these "new" layouts.

Visibility Splays

Fife Council's Transportation Development Guidelines requires visibility splays of 6m x 210m at junctions onto derestricted road (i.e. roads subject to 60mph/ 100kph) or 6m x 140m at junctions onto rural roads subject to 40mph/ 60kph).

Sketch 2014/SK/005 (Appendix D), the indicative 60 mph layout, shows that the visibility splays of 6m x 210m are achievable in both directions either within the existing adopted road boundary or land under the control of the applicant.

Similarly, sketch 2014/SK/006 (Appendix D), the indicative 40 mph layout, shows that the visibility splays of 6m x 140m are achievable in both directions either within the existing adopted road boundary or land under the control of the applicant.

3.3

Parking provision

3.3.1

National Parking Standards

The National Roads Development (or SCOTS) Guide was published with the aim of consolidating all the various local council standards into one set of national standards and are used by TSRD.

For the roadside services proposal, details of the parking standards for the retail element associated with the petrol filling station are contained within page 158 of the SCOTS guide while the parking standards for the freestanding restaurant including drive-thru lane are covered within page 161. Table 3.1 summaries these parking standards for the two land uses.

Table 3.1 – National Parking Standards for Developments	
Type of Development	Vehicle Maximum
Shops (for the petrol filling station with retail)	3 spaces per 100 sq m
Restaurant	1 space per 5 sq m (20 spaces per 100 sq m)

3.3.2

Local Parking Standards

Fife Council have various departures from the SCOTS Guide contained in their Transportation Development Guidelines, including parking standards.

Although there is not any specific standards for the roadside services proposal, details of the parking standards for the retail element associated with the petrol filling station are contained within page 158 of the SCOTS guide while the parking standards for the freestanding restaurant including drive-thru lane are covered within page 161. Table 3.1 summaries these parking standards for the two land uses.

Table 3.2 – Fife Council's Parking Standards for Developments	
Type of Development	Vehicle Maximum
Petrol Filling Station with Retail	1 spaces per 20 sq m (5 spaces per 100 sq m)
Class 3 (Restaurant)	1 space per 5 sq m PFA (20 spaces per 100 sq m PFA)

3.3.3

Appropriate Provision

Applying the Shops (for the petrol filling station with retail) parking standard to the 8 pump filling station with ancillary forecourt shop of circa 545 sq m would allow a maximum of 27 spaces. Similarly applying the restaurant parking standard to a 372 sq m unit with a PFA of circa 186 sq m (50% of the GFA) would allow a maximum of 37 spaces.

Disabled provision should be a minimum of 6% of the total spaces (from the SCOTS guide). Of the 11 spaces on the petrol filling station with retail part of the site 1 space should be marked for disabled use, while for the freestanding restaurant including drive-thru lane with 38 spaces, 2 spaces should be marked for disabled use.

Cycle provision for a petrol filling station with retail is 1 space per 400 sqm for staff and 1 space per 400 sqm for customers, while for restaurants is 1 space per 100 sqm for staff and 1 space per 100 sqm for customers (also from the SCOTS guide). For the petrol filling station with 545 sqm of retail 1 cycle stand (or 2 cycle spaces) is required and for the freestanding restaurant including drive-thru lane of 372 sqm 4 cycle stands (or 8 spaces) is required.

The proposed roadside services layout plan, in Appendix A, shows 11 car parking spaces, 2 of which is marked for disabled use, 2 motorcycle parking bays, 4 cycle stands (for 8 cycles) and 4 HGV parking spaces within the petrol filling station/ lorry park part of the site, while 38 car parking spaces, 3 of which are marked for disabled use, 4 motorcycle parking bays and 4 cycle stands (for 8 cycles) within the freestanding restaurant including drive-thru lane site. Both levels of provision are in accordance with local standards.

A separate area to the south of the access road serving the PFS and the freestanding restaurant including drive-thru lane for electric vehicle (EV) charging provision is also shown on the proposed roadside services layout plan layout with spaces for up to 8 vehicles. This location has been chosen due to the requirement for the EV equipment to be a certain distance away from the PFS facility.

3.4

Servicing/ Deliveries

Wyeth Project Services drawing WPS-SGN-002/P-10 Revision E (Appendix A) shows the swept path of a various vehicle types accessing and egressing from both the petrol filling station and the fast food drive thru' restaurant.

This drawing confirms that all vehicle types can drive in and out of both parts of the proposed roadside services in forward gear without the need to reverse on the public road.

3.5

Summary

Pedestrians will access the proposed roadside services from the surrounding footways and footpaths. An uncontrolled crossing of the B914, with dropped kerbs and a pedestrian refuge/splitter island in the hatched marking, will be provided for pedestrians to access the development from the northern footway along the B914.

Cyclists will also be able to access the proposed roadside services using the B914 which bounds the northern edge of the carriageway opposite the application site. Cyclists will also be able to use the proposed uncontrolled crossing of the B914 to access the development site.

The proposed roadside services are located within a short walking distance of existing public transport services on the A909 Cocklaw Street.

The principle point of vehicular access within the site will be from separate entry and exits, which will connect to the main site spine road serving Kathellan Home Farm and then onto the B914 via the widened access road and improvement to the existing priority junction by the addition of a right turn (ghost island) lane on the B914.

Two indicative layouts of the right turn ghost island design have been prepared, one showing the standards required if a 40 mph speed limit is introduced and the other showing the standards required for the current 60 mph speed limit, both of which can be delivered with the existing adopted road boundaries or land under the control of the applicant.

The detailed site layout shows an appropriate level of cycling and vehicular parking for the proposed roadside services in accordance with the Scottish Government's maximum parking standards.

8 EV spaces has been shown on the layout plan to the south of the access road serving the PFS and the freestanding restaurant.

Servicing of the proposed roadside services can be made in forward gear by all vehicle types without the requirement to reverse on the public road.

4 Existing Road Network

4.1 Introduction

This chapter contains details of the surrounding road network in the vicinity of the application site.

4.2 Assessment Periods

Roadside services usually generate their highest volumes during the weekday AM and PM peak hours, which coincides with existing traffic flows on the surrounding road network being at their highest. Therefore, the assessment periods will consider both the weekday AM and PM peak hours.

4.3 The Study Area

The Scoping Study report submitted to FC-Transportation and TSRD suggested that the scope of the study could be limited to the following junctions:

- B914/ site access priority;
- B914/ M90 Junction 4 Northbound slips priority; and
- B914/ M90 Junction 4 southbound slips priority.

Due to the current COVID-19 pandemic, new classified turning counts would not be representative and therefore acceptable in the foreseeable future. Subsequently, it was suggested by TSRD's term consultants that the 2016 turning counts contained in the Transport Assessment submitted with the South West Kelty SDA planning application could be used in this instance.

The 2016 turning counts at the three junctions, extracted from the South West Kelty SDA planning application TA, are shown in Diagram 1 (Appendix G). The weekday AM and PM peak hours were identified as being between 0800 and 0900 and between 1645 and 1745 respectively. These identified peak hours have formed the assessment periods within this TA.

4.4 Years of Assessment

In accordance with the guidance offered in Transport Assessment Guidance, junction assessment should be completed for the assumed year of opening of the proposed roadside services which is now been revised to 2022.

4.5 Traffic Growth

It is necessary to apply growth to the 2016 traffic flows to forecast 2022 levels (the assumed year of opening of the proposed roadside services).

Department of the Environment, Transport and the Regions (DETR) documentation provide National Road Traffic Forecasts (NRTF) forecasts using low, medium and high factors. Due to the nature of the local area, low growth factors have been applied to future background traffic levels on the surrounding road network.

The 'low' growth NRTF factor between 2016 and 2022 is 1.047. This low growth factor has been applied to the 2016 surveyed traffic flows to forecast the 2022 projected traffic flows. The 2022 weekday AM & PM peak hour projected traffic flows are shown in Diagram 2 (Appendix G).

4.6 Committed developments

4.6.1 *Kathellan Home Farm*

FC-Transportation requested that as the Kathellan Home Farm could reopen without the benefit of planning permission, then trips generated by it shall be taken into consideration. For the purposes of this TA, the freestanding restaurant including drive-thru lane trips rates (see paragraph 5.2) have been applied to the Kathellan Home Farm (circa 500 sq m GFA). The resultant trips have been split equally between the B914 (west), the M90 (north), the M90 (south) and the A909 (east) and are shown in Diagram 3 (Appendix G).

4.6.2 *South West Kelty Strategic Development Area*

FC-Transportation had also requested that the South West Kelty Strategic Development Area (SDA) be considered as a committed development. This SDA will be a mix of residential and employment land, with the following land uses considered in the Transport Assessment that was submitted as part of the information supporting the application:

- up to 900 residential units;
- 4,500m² of class 4 employment land (business);
- 9,000m² of class 5 employment land (general industrial);
- 4,500m² of class 6 employment land (storage/ distribution); and
- a 200 (maximum) pupil primary school.

Normally, though, a committed development only requires to be considered once consent has been granted and on the review of the current status of the application for this SDA (Fife Council's planning reference 16/03915/EIA), it appears that only a draft decision notice dated 5 September 2018 was issued and it contained the following statement:

It has been resolved to grant planning permission subject to a legal agreement (either under S.75 of the Planning Scotland Act or S.69 of the Local Government Scotland Act). A copy of the draft decision notice is enclosed.

In these circumstances the decision is not formally issued until the legal agreement is concluded. Until a decision notice is issued, you should not start work. In due course the Council's solicitors will contact you regarding the conclusion of the legal agreement. It is important that you reply to the Council's solicitors promptly, advising them of your intentions and the name of any legal representative that would act for you or your client in this regard.

If the legal agreement is not concluded within 3 months of the date of this letter, the application will be determined on the assumption that you do not intend to proceed with the agreement. It is likely that the application would be refused in these circumstances

As formal consent has still to be issued at the date of completion of this report (March 2022), it would not be appropriate for the South West Kelty SDA to be considered as a committed development for inclusion in this Transport Assessment.

However, at the specific request of FC-Transportation and TS's consultants, the South West Kelty SDA will be treated as a committed development in a separate sensitivity test and the total South West Kelty SDA traffic flows have been extracted from the TA and are shown in Diagram 4.

4.7 2022 Projected + Kathellan Home Farm Traffic Flows

The estimated traffic flows associated with the potential re-opening of the Kathellan Home Farm has been added to the 2022 projected traffic flows to create 2022 projected + Kathellan Home Farm traffic flows for the weekday AM and PM peak hours as shown in Diagram 5 (Appendix G).

4.8 **2022 Projected + Kathellan Home Farm & South West Kelty SDA (Sensitivity) Traffic Flows**

The estimated traffic flows associated with the South West Kelty SDA potential re-opening of the Kathellan Home Farm has been added to the 2022 projected + Kathellan Home Farm traffic flows to create 2022 projected + Kathellan Home Farm & South West Kelty SDA traffic flows for the weekday AM and PM peak hours as shown in Diagram 6 (Appendix G).

4.9 **Summary**

The extent of the study area is likely to be limited to the B914/ site access priority and the two M90 slip ramp/ B914/ A909 priorities as set out in the Scoping Study submitted to Fife Council, Transportation and Transport Scotland Roads Directorate.

It was suggested that the 2016 surveyed traffic flows contained in the Transport Assessment submitted with the South West Kelty SDA planning application be used as any new traffic turning counts in the foreseeable future would not be representative due to the COVID-19 pandemic.

These 2016 traffic surveys were projected to 2022 (year of opening) using low growth for trunk road movements.

As the Kathellan Home Farm could re-open without the need for planning consent, an estimation of trips to and from this use has been. These trips have then been added to the 2022 projected traffic flows.

The South West Kelty SDA has been requested to be considered as committed development by FC-Transportation and TS's consultants and this has been done as a sensitivity test, even though 4 years have passed since the minded to grant decision was made by the Council's Planning Committee and the formal consent has yet to be issued.

5 Generation and Distribution of the Proposed Development

5.1 Introduction

Discussion on the volume and distribution of the traffic likely to be generated by the proposed roadside services is contained in this Chapter.

5.2 People Trip Rates

Multi-modal trip rates have been extracted from TRICS for the two land uses making up the proposed roadside services development, a petrol filling station with ancillary retail and a freestanding restaurant including drive-thru lane.

An interrogation of the TRICS database for Land Use '06 – Hotel, Food & Drink', Category 'D – Fast Food Drive Thru' and Land Use '13 – Petrol Filling Stations, Category B – PFS with Retail' multi-modal sites has resulted in the people (and vehicle) trip rates as shown in Tables 5.1 and 5.2. It should be noted that there is limited data within TRICS for these two land uses, only 2 sites for the first land use and 3 sites for the second land use.

Table 5.1 – People (& Vehicle) Trip Rates for Freestanding Restaurant Including Drive-thru Lane					
Peak Period	Category	Range (GFA)	People Trip Rates (Vehicle Trip Rates)		
			Arrive	Depart	Total
Weekday AM	Fast Food Drive Thru Restaurants	300 – 472	6.736	4.793	11.529
			(4.275 63.5%)	(3.109 64.9%)	(7.384 64.0%)
Weekday PM	Fast Food Drive Thru Restaurants	300 – 472	28.756	27.979	56.735
			(14.767 51.4%)	(15.155 54.2%)	(29.922 52.7%)

Table 5.2 – People (& Vehicle) Trip Rates for Petrol Filling Stations with Retail					
Peak Period	Category	Range (no of bays)	People Trip Rates (Vehicle Trip Rates) ^S		
			Arrive	Depart	Total
Weekday AM	Petrol Filling Stations, with Retail	8 – 12	14.750	14.714	29.464
			(8.429 57.1%)	(8.500 57.8%)	(16.929 57.5%)
Weekday PM	Petrol Filling Stations, with Retail	8 – 12	15.071	14.536	29.607
			(8.571 56.9%)	(8.571 59.0%)	(17.142 57.9%)

Full TRICS outputs for Land Use '06 – Hotel, Food & Drink', Category 'D – Fast Food Drive Thru' and Land Use '13 – Petrol Filling Stations, Category B – PFS with Retail' multi-modal trip rates are also included in Appendix H.

As there is only very limited multi-modal sites available, and none are in a similar location as to the application site, it is not considered that any meaningful information is available as to allow a valid estimation of the likely number of pedestrians or cyclists that would be attracted to the development proposal other than it would be extremely low due to the land uses proposed.

5.3

Vehicle Trip Rates

Vehicle trip rates have been extracted from TRICS for the two land uses making up the proposed roadside services development, a petrol filling station with ancillary retail and a freestanding restaurant including drive-thru lane.

An interrogation of the TRICS database for Land Use '06 – Hotel, Food & Drink', Category 'D – Fast Food Drive Thru' and Land Use '13 – Petrol Filling Stations, Category B – PFS with Retail' non multi-modal sites has resulted in the vehicle trip rates as shown in Tables 5.3 and 5.4.

Table 5.3 – Vehicle Trip Rates for Freestanding Restaurant Including Drive-thru Lane					
Peak Period	Category	Range (GFA)	Vehicle Trip Rates		
			Arrive	Depart	Total
Weekday AM	Fast Food Drive Thru Restaurants	210 – 800	6.548	6.105	12.653
Weekday PM	Fast Food Drive Thru Restaurants	210 – 800	10.436	10.266	20.702

Table 5.4 – Vehicle Trip Rates for Petrol Filling Stations with Retail					
Peak Period	Category	Range (no of bays)	Vehicle Trip Rates		
			Arrive	Depart	Total
Weekday AM	Petrol Filling Stations, with Retail	4 – 16	9.061	8.699	17.760
Weekday PM	Petrol Filling Stations, with Retail	4 – 16	9.873	9.892	19.765

Full TRICS outputs for Land Use '06 – Hotel, Food & Drink', Category 'D – Fast Food Drive Thru' and Land Use '13 – Petrol Filling Stations, Category B – PFS with Retail' vehicle trip rates are also included in Appendix H.

5.4

McDonalds Restaurants

McDonalds' traffic consultants have supplied average weekday AM and PM vehicular trips based on two sites in Arbroath and Fraddon (near Newquay) and these have been included as McDonald's are the anticipated end user of the free standing restaurant including drive thru lane. These vehicle trips are shown in Table 5.5.

Table 5.5 – Average Surveyed Vehicle Trips to Similar Sized McDonalds Restaurants						
	Weekday AM Peak			Weekday PM Peak		
	Arrive	Depart	Total	Arrive	Depart	Total
Total Vehicles (approximate trip rate)	63 (16.935)	63 (16.935)	126 (33.871)	111 (29.839)	112 (30.108)	223 (59.946)

5.5

Pass-By and Diverted Trips

It is highly unlikely that any of the vehicle trips associated with the proposed roadside services will compose of new trips to the local and/ or trunk road network. The majority, if not all, of these trips will already be on the surrounding local and trunk roads and given the location of the site adjacent to the strategic trunk road network, it is anticipated that trips by car will be made by existing road users, particularly during the weekday AM and PM peak hours.

For these proposed roadside services, it is proposed that 100% of the trips to and from the freestanding restaurant including drive-thru lane and the PFS with ancillary retail will be pass-by trips from either the B914 or diverted from the M90 slips during the weekday AM and PM peak hours. However TSRD have requested that 25% of the trips to from the freestanding restaurant including drive-thru lane are considered as new trips and this had been applied.

5.6

Estimation of Generated Trips

The predicted vehicle trips to the proposed roadside services, consisting of a circa 372 sq m freestanding restaurant including drive-thru lane and the 8 pump petrol filling station with circa 545 sq m of retail, using the vehicle trip rates from Table 5.5 and 5.2, are shown in Tables 5.6 and 5.7.

Table 5.6 – Predicted Vehicle Trips for the Freestanding Restaurant Including Drive-Thru lane						
	Weekday AM Peak			Weekday PM Peak		
	Arrive	Depart	Total	Arrive	Depart	Total
New	16	16	32	28	28	56
Passby	47	47	94	83	84	167

Table 5.7 – Predicted Vehicle Trips for the Petrol Filling Station with Retail						
	Weekday AM Peak			Weekday PM Peak		
	Arrive	Depart	Total	Arrive	Depart	Total
New	-	-	-	-	-	-
Passby	72	70	142	78	80	158

The total generated trips associated with the proposed roadside services is summarised in Table 5.8 below.

Table 5.8 – Predicted Vehicle Trips for the Proposed Roadside Services						
	Weekday AM Peak			Weekday PM Peak		
	Arrive	Depart	Total	Arrive	Depart	Total
New	16	16	32	28	28	56
Passby	119	117	236	161	164	325
Total	135	133	268	189	192	381

Therefore, a total of 268 vehicular trips (two-way) are predicted during the weekday AM peak hour and 381 during the weekday PM peak hour, albeit only 32 of the trips during the weekday AM peak hour and 56 during the weekday PM peak hour are new trips.

5.7

Trip Distribution

The use of a gravity model methodology is normally considered appropriate for establishing a distribution pattern for assignment of new vehicular trips generated for new developments. However, for the purposes of this appraisal, it is considered that using the background traffic patterns in and out of the study area would be more appropriate.

The location of the application site means that routes to and from the proposed roadside services will be from either the B914 (west), the M90 (north), the M90 (south) or the A909 Cocklaw Street. Although in the scoping, it was proposed to use the background traffic patterns to derive the distribution pattern, on further reflection it was thought that on this occasion an alternative and more simplistic method was more applicable.

As the majority of new trips to and from the freestanding restaurant including a drive thru lane are likely to be from residential areas within a short distance, then it would seem reasonable to assume that the majority of these would be to and from Kelty. Therefore, a distribution as shown in Table 5.9 below has been assumed.

Table 5.9 – Assignment/ Distribution of Traffic		
Route to Site	Inbound	Outbound
B914 (west)	10%	10%
M90 (north)	10%	10%
M90 (south)	10%	10%
A909 Cocklaw Street	70%	70%

5.8 **Assignment of Generated Traffic**

The assignment of traffic flows associated with the proposed development are shown in Diagram 7 (passby) for the petrol filling station with retail and Diagrams 8 (new) and 9 (passby) for the freestanding restaurant including drive-thru lane. Diagram 10 shows the total overall traffic associated with the proposed roadside services throughout the network for the weekday AM and PM peak hours.

5.9 **2022 Projected (including Kathellan Home Farm) + Proposed Development Traffic Flows**

The traffic flows associated with the proposed development have been added to the 2022 projected + Kathellan Home Farm traffic flows to create 2022 projected + Kathellan Home Farm plus the proposed roadside services traffic flows for the weekday AM and PM peak hours. These traffic flows are shown in Diagram 11 (Appendix G).

5.10 **2022 Projected (including Kathellan Home Farm & South West Kelty SDA) + Proposed Development Traffic Flows**

The traffic flows associated with the proposed development have been added to the 2022 projected + Kathellan Home Farm & South West Kelty SDA traffic flows to create 2022 projected + Kathellan Home Farm & South West Kelty SDA plus the proposed roadside services traffic flows for the weekday AM and PM peak hours. These traffic flows are shown in Diagram 12 (Appendix G).

5.11 **Summary**

The trip rates for the proposed roadside services, consisting of a petrol filling station with retail and a freestanding restaurant including drive-thru lane, have been derived from TRICS information.

The generated trips associated with the proposed roadside services has been calculated and then been assigned onto the surrounding road network based on a more simplistic distribution.

The generated traffic associated with the proposed roadside services has then been added to 2022 projected + Kathellan Home Farm traffic flows.

As a sensitivity, the generated traffic associated with the proposed roadside services has also been added to 2022 projected + Kathellan Home Farm & South West Kelty SDA traffic flows.

6 Traffic Impact of the Proposed Development

6.1 Introduction

This Chapter discusses the capacity assessment of the junctions on the surrounding road network, namely:

- B914/ site access priority;
- B914/ M90 Junction 4 Northbound slips priority; and
- B914/ M90 Junction 4 southbound slips priority.

6.2 Junction Analysis

The junction analysis has been undertaken using the industry standard computer modelling package Junctions9 and the PICADY module for the roundabout junction. The performance of the junctions has been measured using standard outputs for PICADY - Ratio of Flow to Capacity (RFC), Maximum Queue (Queue), Maximum Delay (Delay) and Reserve Capacity.

Critical geometric parameters of the junction were measured on-site, with the physical layouts confirmed by OS mapping. A sketch showing the existing layout of the junction (and also used to establish some modelling parameters) is included at a scale of 1:500 in Appendix D.

The output file for the PICADY assessment is included in pdf format within Appendix I.

The scenarios that have been tested are as follows:

1. 2016 weekday AM Peak surveyed base
2. 2022 weekday AM Peak projected
3. 2022 weekday AM Peak projected + Kathellan Home Farm
4. 2022 weekday AM Peak projected + Kathellan Home Farm & South West Kelty SDA
5. 2022 weekday AM Peak projected + Kathellan Home Farm & proposed roadside services
6. 2022 weekday AM Peak projected + Home Farm, South West Kelty SDA & proposed roadside services
7. 2016 weekday PM Peak surveyed base
8. 2022 weekday PM Peak projected
9. 2022 weekday PM Peak projected + Kathellan Home Farm
10. 2022 weekday PM Peak projected + Kathellan Home Farm & South West Kelty SDA
11. 2022 weekday PM Peak projected + Kathellan Home Farm & proposed roadside services
12. 2022 weekday PM Peak projected + Home Farm, South West Kelty SDA & proposed roadside services

6.2.1 B914/ Site Access Priority with Right Turn Ghost Island

An indicative layout of the B914/ Site Access priority junction with a right turn ghost island is shown in Sketch 2014/SK/005 (Appendix D). Table 6.1 overleaf summarises the PICADY results for scenarios 5, 11.

Table 6.1 – Summary of PICADY Results (B914/ Site Access Priority with Right Turn Ghost Island)										
Scenario	B914 (east)			Site Access			B914 (west)			Reserve Capacity
	RFC	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	
		(pcu)	(min/ pcu)		(pcu)	(min/ pcu)		(pcu)	(min/ pcu)	%
Weekday AM Peak										
5	-	-	-	0.38	0.6	0.20	0.08	0.1	0.11	64%
Weekday PM Peak										
11	-	-	-	0.57	1.3	0.30	0.10	0.1	0.12	24%

With 6 years of growth, the addition of the Kathellan committed development traffic (note that no South Kelty SDA traffic passing along the B914 hence there is no testing of scenarios 4 or 10) and the traffic associated with the proposed roadside services (scenarios 5 and 11), the assessment predicts that this revised junction layout would operate within capacity during both the weekday morning and evening peak hours with a maximum RFC of 0.38 and a 1 PCU queue occurring on the site access approach during the weekday AM peak hour and a maximum RFC of 0.57 and a 1 PCU queue again occurring on the site access approach during the weekday PM peak hour.

Therefore, the revised junction layout with the addition of the right turn ghost island would accommodate the traffic associated with both the Kathellan Home Farm and the proposed roadside services.

6.2.2

A909/ B914/ M90 Northbound Slips Priority Junction

The existing layout of A909/ B914/ M90 northbound slips priority junction is shown in Sketch 2014/SK/102 (Appendix D). Tables 6.2a&b summarise the PICADY results for all scenarios.

Table 6.2a – Summary of PICADY Results (A909/ B914/ M90 Northbound Slips Priority)													
Scenario	A909 (east)			M90 Northbound Off Ramp			B914 (west)			M90 Northbound On Ramp			Reserve Capacity
	RFC	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	
		(pcu)	(min/ pcu)		(pcu)	(min/ pcu)		(pcu)	(min/ pcu)		(pcu)	(min/ pcu)	%
Weekday AM Peak													
1	0.13	0.2	0.12	L 0.10 R 0.24	0.1 0.3	0.12 0.19	0.00	0.0	0.00	-	-	-	123%
2	0.14	0.2	0.12	L 0.11 R 0.25	0.1 0.3	0.12 0.19	0.00	0.0	0.00	-	-	-	113%
3	0.14	0.2	0.12	L 0.13 R 0.25	0.1 0.3	0.13 0.20	0.00	0.0	0.00	-	-	-	106%
4	0.22	0.3	0.14	L 0.14 R 0.55	0.2 1.2	0.14 0.34	0.00	0.0	0.00	-	-	-	25%
5	0.12	0.1	0.13	L 0.16 R 0.22	0.2 0.3	0.13 0.20	0.00	0.0	0.00	-	-	-	96%
6	0.22	0.3	0.14	L 0.17 R 0.54	0.2 1.2	0.15 0.35	0.00	0.0	0.00	-	-	-	21%

Table 6.2b – Summary of PICADY Results (A909/ B914/ M90 Northbound Slips Priority)													
Scenario	A909 (east)			M90 Northbound Off Ramp			B914 (west)			M90 Northbound On Ramp			Reserve Capacity
	RFC	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	
		(pcu)	(min/ pcu)		(pcu)	(min/ pcu)		(pcu)	(min/ pcu)		(pcu)	(min/ pcu)	%
Weekday PM Peak													
7	0.08	0.1	0.11	L 0.19 R 0.74	0.2 2.7	0.16 0.54	0.00	0.0	0.00	-	-	-	3%
8	0.08	0.1	0.11	L 0.20 R 0.78	0.3 3.3	0.16 0.63	0.00	0.0	0.00	-	-	-	-2%
9	0.09	0.1	0.11	L 0.24 R 0.80	0.3 3.7	0.17 0.71	0.00	0.0	0.00	-	-	-	-4%
10	0.14	0.2	0.12	L 0.25 R 1.23	0.3 56.3	0.19 7.80	0.00	0.0	0.00	-	-	-	-32%
11	0.08	0.1	0.12	L 0.35 R 0.74	0.5 2.7	0.20 0.61	0.00	0.0	0.00	-	-	-	-1%
12	0.13	0.2	0.12	L 0.38 R 1.21	0.6 46.9	0.23 6.9	0.00	0.0	0.00	-	-	-	-30%

The assessment predicts that this junction currently operates with a maximum RFC of 0.22 and a 0 PCU queue occurring on the M90 northbound off slip right turn movement during the weekday AM peak hour (scenario 1) and a maximum RFC of 0.68 and a 2 PCU queue occurring on the same M90 northbound off slip right turn movement during the weekday PM peak hour (scenario 7).

With the addition of 6 years of growth (scenarios 2 and 8), the assessment predicts that this junction would continue to operate within capacity during both the weekday morning and evening peak hours with a maximum RFC of 0.25 and a 0 PCU queue occurring on the M90 northbound off slip right turn movement during the weekday AM peak hour and a maximum RFC of 0.78 and a 3 PCU queue occurring on the same M90 northbound off slip right turn movement during the weekday PM peak hour.

With the addition of the Kathellan Home Farm traffic (scenarios 3 and 9), the assessment predicts that this junction would continue to operate within capacity during both the weekday morning and evening peak hours with a maximum RFC of 0.25 and a 0 PCU queue occurring on the M90 northbound off slip right turn movement during the weekday AM peak hour and a maximum RFC of 0.80 and a 4 PCU queue occurring on the same M90 northbound off slip right turn movement during the weekday PM peak hour.

With the addition of both the Kathellan Home Farm and South West Keltly SDA traffic (scenarios 4 and 10), the assessment predicts that this junction would continue to operate within capacity during the weekday morning peak hour only with a maximum RFC of 0.55 and a 1 PCU queue occurring on the M90 northbound off slip right turn movement. However, during the weekday PM peak hour, the junction would be over capacity with a maximum RFC of 1.23 and a 56 PCU queue predicted to occur on the M90 northbound off slip right turn movement. It is noted that no improvements are proposed at this junction associated with the South West Keltly SDA even though the junction is predicted to be over capacity.

With the addition of the traffic associated with the proposed roadside services but only the Kathellan Home Farm as committed development (scenarios 5 and 11), the assessment predicts that this junction would continue to operate within capacity during both the weekday morning and evening peak hours with a maximum RFC of 0.23 and a 0 PCU queue occurring on the M90 northbound off slip right turn movement during the weekday AM peak hour and a maximum RFC of 0.74 and a 3 PCU queue occurring on the same M90 northbound off slip right turn movement during the weekday PM peak hour.

With the addition of the traffic associated with the proposed roadside services and both the Kathellan Home Farm and South West Kelty SDA as committed developments (scenarios 6 and 12), the assessment predicts that this junction would operate within capacity during the weekday morning peak hour only with a maximum RFC of 0.54 and a 1 PCU queue occurring on the M90 northbound off slip right turn movement. Again, during the weekday PM peak hour, the junction would be over capacity with a maximum RFC of 1.21 and a 47 PCU queue predicted to occur on the M90 northbound off slip right turn movement.

As the proposed roadside services will divert trips from both the M90 off slips, and the maximum RFC drops slightly compared in scenario 12 compared to Scenario 10, no alterations or improvements would be required at this junction to accommodate the modest increase in traffic associated with the proposed roadside services.

6.2.3

A909/ M90 Southbound Slips Priority Junction

The existing layout of A909/ M90 southbound slips priority junction is shown in Sketch 2014/SK/102 (Appendix D). Tables 6.3a&b summarise the PICADY results for all scenarios.

Table 6.3a – Summary of PICADY Results (A909/ M90 Southbound Slips Priority)													
Scenario	A909 (west)			M90 Southbound Off Ramp			A909 (east)			M90 Southbound On Ramp			Reserve Capacity
	RFC	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	%
		(pcu)	(min/ pcu)		(pcu)	(min/ pcu)		(pcu)	(min/ pcu)		(pcu)	(min/ pcu)	
Weekday AM Peak													
1	0.17	0.2	0.13	L 0.10 R 0.16	0.1 0.2	0.12 0.16	0.00	0.0	0.00	-	-	-	193%
2	0.19	0.2	0.14	L 0.12 R 0.18	0.1 0.2	0.12 0.17	0.00	0.0	0.00	-	-	-	145%
3	0.21	0.3	0.14	L 0.12 R 0.20	0.1 0.2	0.12 0.18	0.00	0.0	0.00	-	-	-	126%
4	0.25	0.3	0.18	L 0.17 R 0.22	0.2 0.3	0.13 0.20	0.00	0.0	0.00	-	-	-	83%
5	0.27	0.4	0.16	L 0.10 R 0.26	0.1 0.3	0.12 0.20	0.00	0.0	0.00	-	-	-	86%
6	0.32	0.5	0.20	L 0.16 R 0.26	0.2 0.3	0.13 0.22	0.00	0.0	0.00	-	-	-	63%

Table 6.3b – Summary of PICADY Results (A909/ M90 Southbound Slips Priority)													
Scenario	A909 (west)			M90 Southbound Off Ramp			A909 (east)			M90 Southbound On Ramp			Reserve Capacity
	RFC	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	
		(pcu)	(min/ pcu)		(pcu)	(min/ pcu)		(pcu)	(min/ pcu)		(pcu)	(min/ pcu)	%
Weekday PM Peak													
7	0.13	0.2	0.12	L 0.20 R 0.33	0.2 0.5	0.15 0.24	0.00	0.0	0.00	-	-	-	58%
8	0.14	0.2	0.12	L 0.21 R 0.35	0.3 0.5	0.15 0.25	0.00	0.0	0.00	-	-	-	51%
9	0.17	0.2	0.13	L 0.21 R 0.40	0.3 0.7	0.16 0.28	0.00	0.0	0.00	-	-	-	39%
10	0.18	0.2	0.14	L 0.31 R 0.46	0.5 0.8	0.20 0.35	0.00	0.0	0.00	-	-	-	21%
11	0.21	0.3	0.14	L 0.21 R 0.54	0.3 1.2	0.18 0.44	0.00	0.0	0.00	-	-	-	10%
12	0.23	0.3	0.15	L 0.29 R 0.55	0.4 1.2	0.20 0.45	0.00	0.0	0.00	-	-	-	8%

The assessment predicts that this junction currently operates with a maximum RFC of 0.17 and a 0 PCU queue occurring on the A909 (west) right turn movement during the weekday AM peak hour (scenario 1) and a maximum RFC of 0.33 and a 1 PCU queue occurring on the M90 southbound off slip right turn movement during the weekday PM peak hour (scenario 7).

With the addition of 6 years of growth (scenarios 2 and 8), the assessment predicts that this junction would continue to operate within capacity during both the weekday morning and evening peak hours with a maximum RFC of 0.19 and a 0 PCU queue occurring on the A909 (west) right turn movement during the weekday AM peak hour and a maximum RFC of 0.35 and a 1 PCU queue occurring on the M90 southbound off slip right turn movement during the weekday PM peak hour.

With the addition of the Kathellan Home Farm traffic (scenarios 3 and 9), the assessment predicts that this junction would continue to operate within capacity during both the weekday morning and evening peak hours with a maximum RFC of 0.21 and a 0 PCU queue occurring on the A909 (west) right turn movement during the weekday AM peak hour and a maximum RFC of 0.40 and a 1 PCU queue occurring on the M90 southbound off slip right turn movement during the weekday PM peak hour.

With the addition of both the Kathellan Home Farm and South West Kelty SDA traffic (scenarios 4 and 10), the assessment predicts that this junction would continue to operate within capacity during both the weekday morning and evening peak hours with a maximum RFC of 0.25 and a 0 PCU queue occurring on the A909 (west) right turn movement during the weekday AM peak hour and a maximum RFC of 0.46 and a 1 PCU queue occurring on the M90 southbound off slip right turn movement during the weekday PM peak hour.

With the addition of the traffic associated with the proposed roadside services but only the Kathellan Home Farm as committed development (scenarios 5 and 11), the assessment predicts that this junction would continue to operate within capacity during both the weekday morning and evening peak hours with a maximum RFC of 0.27 and a 0 PCU queue occurring on the A909 (west) right turn movement during the weekday AM peak hour and a maximum RFC of 0.54 and a 1 PCU queue occurring on the M90 southbound off slip right turn movement during the weekday PM peak hour.

With the addition of the traffic associated with the proposed roadside services and both the Kathellan Home Farm and South West Kelty SDA as committed developments (scenarios 6 and 12), the assessment predicts that this junction would operate within capacity during both the weekday morning and evening peak hours with a maximum RFC of 0.32 and a 1 PCU queue occurring on the A909 (west) right turn movement during the weekday AM peak hour and maximum RFC of 0.55 and a 1 PCU queue again occurring on the M90 northbound off slip right turn movement during the weekday PM peak hour approach.

Therefore, no alterations or improvements would be required at this junction to accommodate the traffic associated with the proposed roadside services.

6.3

Summary

The impact of the proposed roadside services traffic on the surrounding roads (links) has been assessed to determine the extent of the junction analysis required.

The analysis of the B914/ site access simple priority with a right turn ghost island on the B914 predicts this revised junction layout would operate well with capacity during the year of opening of 2022 with the traffic associated with the proposed roadside services.

The analysis of the existing A909/ M90 southbound on and off slip priority has demonstrated that this junction will continue to operate within capacity with the addition of the traffic associated with the committed developments and the proposed roadside services.

The analysis of the existing A909/ B914/ M90 northbound on and off slip priority has demonstrated that this junction will continue to operate within capacity with the addition of the traffic associated with the committed developments and the proposed roadside services during the weekday AM peak hour. However, the junction is predicted to be over capacity when the traffic associated with the South West Kelty SDA is added during the weekday PM peak hour, but no offsite improvements at this junction appear to have been investigated nor requested to alleviate the predicted capacity issues.

The addition of the traffic associated with the proposed roadside services would actually slightly reduce the maximum RFC predicted due to diverted traffic from both M90 off slips thus no alterations or improvements would be required as a consequence of the proposed roadside services development.

7 Summary and Conclusions

7.1 Introduction

Livingstone & Partners has been commissioned by Mr Ian MacLellan and TG Convenience Stores Ltd to prepare a Transport Assessment in support of an application for roadside services on land with Kathellan, Home Farm, Kelty to the south of the B914, west of the M90 Junction 4.

The roadside services will consist of a 8 pump filling station and two jet washes with ancillary forecourt shop of circa 545 sq m, a 4 space HGV lorry park with separate fuelling area, a freestanding restaurant including drive-thru lane of circa 372 sq m and a dedicated electric vehicle charging area.

The vehicular access to the application site is proposed via the existing Kathellan Home Farm vehicular access junction onto the B914.

This Transport Assessment examines the accessibility of the application site by a range of travel modes and establishes the impact that traffic associated with the roadside services would have on the surrounding road network.

The application site location and proposals are compliant with national and local policies in that the site relates well to the existing sustainable transportation network providing access to walking, cycling and public transport travel options.

7.2 Current Accessibility and Transport Provision of the Application Site

The assessment of walking and cycling routes has shown that existing provision is generally good around the application site. Local and longer distance bus routes serve the bus stops to the east of the Kathellan Home Farm site.

The widths and speed limits along the B914, at the M90 Junction 4 interchange and the A909 Cocklaw Street have also been reviewed.

A review of the available accident data over the last five years has indicated 3 slight injury incidents and therefore does not indicate that there is a road safety concern over this part of the local and/ or trunk road network.

7.3 The Development and the Proposed Transport Infrastructure

Pedestrians will access the proposed roadside services from the surrounding footways and footpaths. An uncontrolled crossing of the B914, with dropped kerbs and a pedestrian refuge/ splitter island in the hatched marking, will be provided for pedestrians to access the development from the northern footway along the B914.

Cyclists will also be able to access the proposed roadside services using the B914 which bounds the northern edge of the carriageway opposite the application site. Cyclists will also be able to use the proposed uncontrolled crossing of the B914 to access the development site.

The proposed roadside services are located within a short walking distance of existing public transport services on the A909 Cocklaw Street.

The principle point of vehicular access within the site will be from separate entry and exits, which will connect to the main site spine road serving Kathellan Home Farm and then onto the B914 via the widened access road and improvement to the existing priority junction by the addition of a right turn (ghost island) lane on the B914.

Two indicative layouts of the right turn ghost island design have been prepared, one showing the standards required if a 40 mph speed limit is introduced and the other showing the standards required for the current 60 mph speed limit, both of which can be delivered with the existing adopted road boundaries or land under the control of the applicant.

The detailed site layout shows an appropriate level of cycling and vehicular parking for the proposed roadside services in accordance with the Scottish Government's maximum parking standards.

8 EV spaces has been shown on the layout plan to the south of the access road serving the PFS and the freestanding restaurant.

Servicing of the proposed roadside services can be made in forward gear by all vehicle types without the requirement to reverse on the public road.

7.4 Existing Road Network

The extent of the study area is likely to be limited to the B914/ site access priority and the two M90 slip ramp/ B914/ A909 priorities as set out in the Scoping Study submitted to Fife Council, Transportation and Transport Scotland Roads Directorate.

It was suggested that the 2016 surveyed traffic flows contained in the Transport Assessment submitted with the South West Kelty SDA planning application be used as any new traffic turning counts in the foreseeable future would not be representative due to the COVID-19 pandemic.

These 2016 traffic surveys were projected to 2022 (year of opening) using low growth for trunk road movements.

As the Kathellan Home Farm could re-open without the need for planning consent, an estimation of trips to and from this use has been. These trips have then been added to the 2022 projected traffic flows.

The South West Kelty SDA has been requested to be considered as committed development by FC-Transportation and this has been done as a sensitivity test, even though 4 years have passed since the minded to grant decision was made by the Council's Planning Committee and the formal consent has yet to be issued.

7.5 Generation and Distribution of the Proposed Development

The trip rates for the proposed roadside services, consisting of a petrol filling station with retail and a freestanding restaurant including drive-thru lane, have been derived from TRICS information.

The generated trips associated with the proposed roadside services has been calculated and then been assigned onto the surrounding road network based on a more simplistic distribution.

The generated traffic associated with the proposed roadside services has then been added to 2022 projected + Kathellan Home Farm traffic flows.

As a sensitivity, the generated traffic associated with the proposed roadside services has also been added to 2022 projected + Kathellan Home Farm & South West Kelty SDA traffic flows.

7.6 Traffic Impact of the Proposed Development

The impact of the proposed roadside services traffic on the surrounding roads (links) has been assessed to determine the extent of the junction analysis required.

The analysis of the B914/ site access simple priority with a right turn ghost island on the B914 predicts this revised junction layout would operate well with capacity during the year of opening of 2022 with the traffic associated with the proposed roadside services.

The analysis of the existing A909/ M90 southbound on and off slip priority has demonstrated that this junction will continue to operate within capacity with the addition of the traffic associated with the committed developments and the proposed roadside services.

The analysis of the existing A909/ B914/ M90 northbound on and off slip priority has demonstrated that this junction will continue to operate within capacity with the addition of the traffic associated with the committed developments and the proposed roadside services during the weekday AM peak hour. However, the junction is predicted to be over capacity when the traffic associated with the South West Kelty SDA is added during the weekday PM peak hour, but no offsite improvements at this junction appear to have been investigated nor requested to alleviate the predicted capacity issues.

The addition of the traffic associated with the proposed roadside services would actually slightly reduce the maximum RFC predicted due to diverted traffic from both M90 off slips thus no alterations or improvements would be required as a consequence of the proposed roadside services development.

7.7

Conclusions

Table 7.1 below includes a summary of the main transport matters raised in Fife Council's Transportation and Transport Scotland's consultants responses to the Transport Assessment, dated April 21, submitted with the previous application.

Table 7.1 – Transport Summary	
Comment	Response
Fife Council's Transportation Departments Comments	
4.6 Committed Development – The final paragraph of 4.6.2 contains the following statement “As formal consent has still to be issued at the date of completion of this report (December 2020), it would not be appropriate for the South West Kelty SDA to be considered as a committed development for inclusion in this Transport Assessment.” Not considering the Kelty SW SDA as committed development because the S75 Agreement had not been signed at the time of submitting the report is not reasonable justification. Fife Council have twice requested the inclusion of the Kelty SW SDA as committed development as it would generate significant trips that must be taken into consideration in any subsequent adjacent planning applications. The TA setting aside the Kelty SW SDA as committed development means that significant trips (including pedestrian and cyclist) between the two sites and an assessment of potential mitigation measures are being ignored	<p>The scale of the South West Kelty SDA is likely to take some 15 to 20 years to build out even if it starts in a years time, which is unlikely seeing that the decision notice for the planning permission in principle has yet to be released as the legal agreement has still not been signed some 3 and a half years after the Fife Council's draft decision on the planning permission in principle application (16/03915/EIA) was issued in draft and contained the following statement <i>“If the legal agreement is not concluded within 3 months of the date of this letter, the application will be determined on the assumption that you do not intend to proceed with the agreement. It is likely that the application would be refused in these circumstances.”</i></p> <p>In order to move forward, the South West Kelty SDA has been included as committed development in a sensitivity test</p>
The lack of a safe pedestrian route between the Kelty SW SDA and application site is a significant concern. This is not acceptable and the submitted TA is not fit for purpose for this reason alone. As the Kelty SW SDA has not been considered as committed development no mitigation measures are proposed to ensure safe pedestrian and cyclist movement along the south side of the B914/A909. There is no	It is interesting to note that the Baxter's Home Farm was still open at the time of the Transport Assessment for the South West Kelty SDA was prepared (Nov 16) and was mentioned as a destination to and from the South West Kelty SDA in Paragraph 3.5 of the TA, yet no infrastructure improvements appear to be required to facilitate any pedestrian or cyclists movement between these two locations or even any recreational

<p>continuous footway on the south side of the B914. The vehicle restraint barrier on the Junction 4 bridge is a constraint to safe pedestrian movement. If no mitigation measures are proposed it would result in pedestrians walking on the derestricted carriageway to the detriment of pedestrian safety, which would not be acceptable. The provision of safe pedestrian facilities across the Kelty interchange is a significant challenge</p>	<p>use from the South West Kelty SDA, which is for up to 900 houses, to the west of the M90 Motorway junction such as the footpaths around the former St Ninian's Opencast site which lay on the south side of the B914</p>
<p>The TA has considered vehicle trips rather than person trips. Therefore, no consideration has been given to the potential increase in walking and cycling trips between Kelty and the application site and no assessment has been given to what, if any, mitigation measures would be required to address the substandard footway width on the Junction 4 bridge and crossing facilities on the on and off slip roads</p>	<p>The TRICS database contains data on multi-modal sites but very limited data on the two land uses proposed, a PFS and a fast food drive thru restaurant. For the PFS, there are only 3 multi-modal sites, none of which are in similar locations to that proposed and due to the low number of sites it is not normal to use data from such a small sample. Similarly, for the fast food drive thru restaurant, there are only 6 multi-modal sites, at least 2 of them were surveyed more than 10 years ago, none of which are in similar locations to that proposed and due to the low number of sites again it is not normal to use data from such a small sample.</p> <p>Furthermore, the development proposal is a likely to attract very few pedestrians or cyclists due to the nature of the land uses and the existing pedestrian facilities along the northern side of the A909 Cocklaw Street and the B914 are considered appropriate to accommodate the scale of demand anticipated</p>
<p>Chapter 3.2.1 notes that “an uncontrolled crossing of the B914 will be provided with dropped kerbs and a splitter island within the ghost-island hatching”. The proposed measure is the minimum mitigation that could be proposed, it is basically a pedestrian refuge offering minimum protection for pedestrians crossing the unilluminated derestricted B914. I have not consulted Traffic Management colleagues for comments at this time but would do so when the amended TA is submitted</p>	<p>As stated about, the development proposal is a likely to attract very few pedestrians or cyclists and coupled with the proposal to introduce a 40 mph speed limit along the B914 an uncontrolled crossing of the B914 with dropped kerbs and a splitter island within the ghost-island hatching is considered appropriate</p>
<p>Chapter 3.2.3 – a ghost-island right-turning lane on the B914 is proposed to mitigate the possibility of high-speed rear end shunts. I would agree that this is required, however, a detailed and dimensioned drawing of the indicative layout shown on drawing 2014/SK/002 Rev A shall be submitted to clarify that the proposed mitigation measure can be provided within the existing public</p>	<p>A revised drawing (2014/SK/005) showing the appropriate dimensions for a right turn ghost island within the 60mph speed limit, along with the appropriate visibility splays, has been prepared all within the extend of the adopted road boundary and/ or land under the control of the applicant.</p> <p>However, as part of the development</p>

<p>road boundary and/or land within the control of the applicant.</p> <p>Chapter 3.2.3 – the Fife Council Transportation Development Guidelines (August 2018) details Fife Council's departures from the SCOTS National Roads Development Guide. The required visibility at the junction of the site access with the B914 is 6 metres by 210 metres. Drawing 2014/SK/012 Rev A shall be amended to show the required visibility splays and clarify that they can be provided within the existing public road boundary and/or land within the control of the applicant</p>	<p>proposals, the applicant is willing to fund the cost of the promotion of a Traffic Regulation Order to promote a 40 mph speed limit along the B914 from an agreed distance west of the existing site access to the east side of the M90 Motorway Interchange (or eastwards to the existing 30 mph speed limit on the A909 Cocklaw Street).</p> <p>A further Drawing (2014/SK/006) has therefore been prepared showing the appropriate dimensions for a right turn ghost island within a 40mph speed limit, along with the reduced visibility splays, again all within the extend of the adopted road boundary and/ or land under the control of the applicant</p>
<p>Chapter 3.31 notes that the parking provision is based on the parking standards within the SCOTS National Roads Development Guide. As noted above the Fife Council Transportation Development Guidelines (August 2018) details Fife Council's departures from the SCOTS National Roads Development Guide and this includes parking standards. The parking Standards do not contain a standard for the proposed use but do contain standards for the individual elements of the proposed use.</p> <p>The restaurant with a public floor area of some 100sqm requires (1 parking space per 5sqm PFA) 20 off-street parking spaces. The petrol filling station with a gross floor area of some 450sqm requires (1 parking space per 20sqm GFA) 22 off-street parking spaces.</p> <p>The proposed site layout plan (document 05) shows the provision of 38 parking spaces for the restaurant and 11 parking spaces for the petrol filling station. Overall there would be adequate off-street car parking but the distribution within the site is poor.</p> <p>The absence of ELV charging points within the proposed site layout plan is a significant omission. The Fife Council Transportation Development Guidelines requires only 1 charging point per 50 car parking spaces. However, given the move away from petrol/diesel power to electric and hydrogen powered vehicles a minimum of 4 ELV charging points shall be provided within the petrol filling station and 2 ELV charging points within the restaurant car park. The ELV charging places would be counted in the overall parking provision for the site</p>	<p>Fife Council's parking standards have now been included in paragraph 3.3.2 of the TA. A separate area has been set aside for 8 EV spaces due to the need to be located a minimum distance away from the PFS</p>
<p>The proposed vehicular access to the site would be via the existing vehicular access from the B914 which is subject to a 60mph speed limit. Transportation Development</p>	<p>As part of the development proposals, the applicant is willing to fund the cost of the promotion of a Traffic Regulation Order to promote a 40 mph speed limit along the</p>

<p>Management has a presumption against the formation of new vehicular accesses or the intensification in use of existing accesses on unrestricted distributor roads outwith established built-up areas. For clarification, the built-up area, from a transportation point of view, is defined as the area within a 20, 30 or 40mph speed limit. The reason for this policy is that such vehicular accesses introduce, or increase, traffic turning manoeuvres which conflict with through traffic movements and so increase the probability of accidents occurring, to the detriment of road safety. The proposed development would clearly result in a significant increase in turning manoeuvres at the existing junction and at the adjacent M90 slip road junctions with the B914. This policy can be relaxed if adequate justification is submitted and suitable mitigation measures are proposed. The submitted TA and drawings provide neither</p>	<p>B914 from an agreed distance west of the existing site access to the east side of the M90 Motorway Interchange (or eastwards to the existing 30 mph speed limit on the A909 Cocklaw Street) which would assist pedestrians crossing to and from the northern footway on the B914 and the proposed development via the central splitter island</p>
<p>Transport Scotland Consultants' Comments</p>	
<p>The majority of the trip generation / distribution parameters appear to be as agreed at scoping, however it is noted that in Section 5.4, a 4-pump PFS has been assumed for trip generation purposes, whilst para 2.20 of the Planning Statement at 2.20 indicates the development will comprise an 8-pump forecourt. The implications of this is that the level of traffic associated with this element would potentially be twice what has been assumed in the TA. Whilst the PFS is only predicted to generate 'pass-by' traffic rather than new trips, the assignment of these trips could affect the predicted performance of the junctions being assessed. Clarification of the development content is therefore requested and if an 8-pump facility is proposed, the implications of this on the TA conclusions should be provided</p>	<p>The trip generation has been amended to account for an 8 pump PFS</p>
<p>It is noted that despite the advice provided by Fife Council at scoping stage, the TA has not included the South West Kelty SDA as committed development; The justification provided in the TA being that as the application is only 'minded to grant' subject to conclusion of a S75 agreement, formal consent has not been issued and therefore the development should not be considered as committed. Transport Scotland would disagree with this position and concur with the view of Fife Council that as the application is 'minded to grant' it should be included as committed development. It is noted that the TA for the SDA did identify</p>	<p>The South West Kelty SDA has been included as committed development in a sensitivity scenario</p>

<p>potential capacity issues at the M90 northbound off slip right turn to the B914, although ultimately these impacts were considered acceptable by Transport Scotland and Fife Council. Whilst this development will add traffic to the slip road, it will be confined to the left lane, which was previously shown to have no capacity issues. There may therefore not be a significant issue, however the TA should be updated to include the SDA as committed development to demonstrate what if any impacts will occur</p>	
<p>The TA does not quantify the anticipated pedestrian demand generated between the site and Kelty to the east that will require to cross the existing M90 slip roads. This should be provided within the TA. It is recognised that there is already a signed pedestrian route along the north side of the B914 although this is restricted in width over the motorway overbridge and relies on informal crossings of the on and off slips, not all of which have drop kerbs. If this route is to be promoted by the development to accommodate potential pedestrian traffic then comment should be provided on the standards provided by the route and consideration should be given to potential enhancements to this route, possibly including the introduction of drop kerbs and tactile paving</p>	<p>It is difficult to quantify the anticipated pedestrian demand generated between the site and Kelty to the east that will require to cross the existing M90 slip roads as both land uses are unlikely to generate any significant level of pedestrians, particularly to the PFS. As for the fast food drive thru, there are very limited multi-modal sites in the TRICS data, especially one that is in a similar location to the one proposed. In any case, pedestrian from the east side of the M90 Motorway Interchange would cross along the northern side of the junction via the existing Core Path route and with the recent changes to the Highway Code where cars have to give-way to pedestrians and cycles crossing side roads then it is considered that the existing provision is more than adequate</p>
<p>This pedestrian route relies on the creation of an uncontrolled pedestrian crossing on the B914 in the vicinity of site, where the speed limit is currently 60mph. Confirmation will therefore be required that this arrangement is acceptable to Fife Council, as the alternative would seem to be the creation of a new pedestrian route along the south side of the B914 with new crossing points on the M90 south facing slips, which would require further consideration by Transport Scotland</p>	<p>As stated above, as part of the development proposals, the applicant is willing to fund the cost of the promotion of a Traffic Regulation Order to promote a 40 mph speed limit along the B914 from an agreed distance west of the existing site access to the east side of the M90 Motorway Interchange (or eastwards to the existing 30 mph speed limit on the A909 Cocklaw Street) which would assist pedestrians crossing to and from the northern footway on the B914 and the proposed development via the central splitter island</p>

This Transport Assessment has assessed the transport issues associated with the proposed roadside services on a site to the south of the B914 to the west of the M90 Junction, Kelty. It has been concluded that:

- the application site benefits from being in close proximity to established pedestrian and cycle routes, while a new uncontrolled crossing point of the B914, with dropped kerbs and a pedestrian refuge/ splitter island created on the ghost island hatching, providing a direct access into the development site;
- access to public transport is reasonable due to the location of existing bus stops on the A909 Cocklaw Street in Kelty to the east of the application site;
- vehicular access into the application site will be from a revised priority junction layout onto the B914, with the addition of a right turn ghost island on the B914 and the site access widened to 6.5m and corner radii increased to accommodate HGVs;
- two indicative layouts of the proposed right turn ghost island, one if the speed limit on the section of the B914 is reduced to 40 mph or the other if the existing 60 mph speed limit is maintained. Both indicative layouts can be delivered within adopted road boundaries or land under the control of the applicant;
- the appropriate level of car parking for the proposed roadside services has been provided in accordance with local standards;
- the A909/ M90 southbound on and off slip priority is predicted to continue to operate within capacity with traffic associated with both of the committed developments and the proposed roadside services;
- the A909/ B914/ M90 northbound on and off slip priority is predicted to continue to operate within capacity during the weekday AM peak hour with traffic associated with both of the committed developments and the proposed roadside services;
- the A909/ B914/ M90 northbound on and off slip priority is predicted to be over capacity during the weekday PM peak hour with traffic associated with the South West Kelty SDA, however road alterations or improvements at this junction are required as part of this committed development;
- the proposed roadside services will divert traffic from both M90 off slips and thus is predicted to reduce the maximum RFC at this junction, hence no alterations or improvements would be required as a consequence of this development proposal.

Appendices