

Technical Note

Project Title: Gourock Dunoon Ferry Study
MVA Project Number: 101988
Subject: Market Trends, Forecast Scenarios and Approach
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Author(s): [REDACTED]
Reviewer(s): [REDACTED]
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1 Introduction

- 1.1 This note contains:
- analysis of historical trends data on the Firth of Clyde and the characteristics of travel on the route;
 - analysis of fares and revenue from CalMac / Cowal and Western Ferries;
 - potential scenarios for the future demand for travel across the Firth of Clyde; and
 - a discussion of the key components of an incremental cost and revenue analysis.
- 1.2 Version 2.0 of this note includes updates following a meeting of the Project Team meeting held at Transport Scotland on 15 February 2013 and subsequent discussions.

2 Trend Data – Boardings

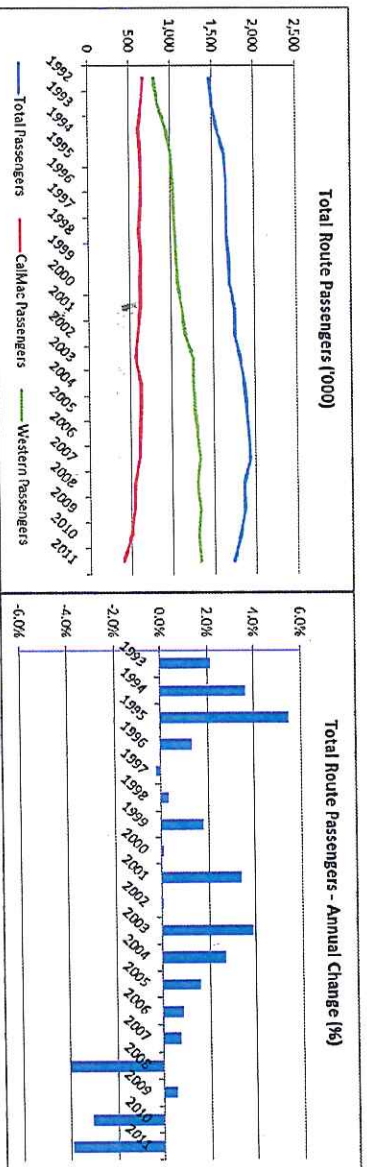
2.1 The total volume of passengers, cars and commercial vehicles travelling across the Firth of Clyde is clearly a key issue in estimating the forecast volumes on any given ferry service and hence the revenues generated by any new town centre vehicle and passenger service. This section takes a detailed look at the trends associated with both Cowal / CalMac and Western Ferries. In addition it is important to understand the main components of the market and this is also explored here.

2.2 In 2011 (the last year for which full data is available from both operators) the total combined market for the town centre service and the Western Ferries services was as follows:

- 1,741k passengers (2007 peak was 1,936k);
- 604k cars (2007 peak was 682k);
- 39.4k CVs & buses (2007 was 38.6k); and
- Total revenue for the route is around £8m based on 2011 volumes and 2012 fares.

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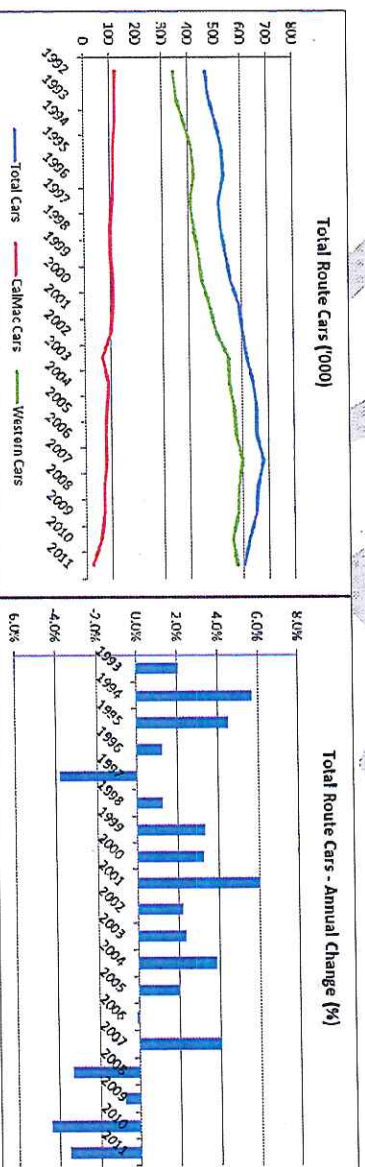
2.3 The charts below show the key long term trends for passengers and car carryings since 1992 in terms of absolute figures and also year on year percentage change, starting with passengers.



2.4 Total passenger volumes therefore grew from around 1.5m in 1992 to nearly 2m in the peak year of 2007. Note though that the figures for 2007 are affected by the closure of the Rest and Be Thankful for 17 days in late October and early November (ie 4.5% of the year). If 2007 figures are discarded, 2006 was the peak year for passenger volumes. Note also that CalMac Ferries were out of service between March and June 2003 which explains the drop in that year.

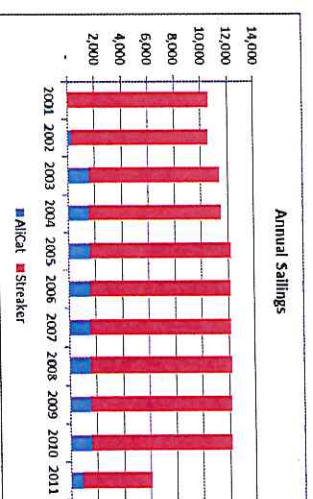
2.5 Over this period (1992-2006) CalMac / Cowal / Argyll passenger volumes were fairly stable, dropping by only 8%, whilst Western passenger volumes increased dramatically, by 63%. Total route volumes grew by 31% to 2006, but have since dropped by 9% from 2006 to 2011, meaning that volumes are now 18% above 1992 levels.

2.6 Between 2006 and 2011, Cowal / Argyll boardings declined sharply (-33%) whilst Western boardings were broadly flat (+2%), with volumes across the route declining by 9%.



2.7 Total car volumes grew from around 470k in 1992 to 682k in the peak year of 2007. The 2007 closure of the Rest and Be Thankful will in part explain the spike in car carryings seen in 2007, and this should be regarded as an exceptional year, so the 2008 figures are assumed to be the true peak in this case. Note again the drop in CalMac figures for 2003 associated with a service disruption that year.

2.8 Note also that in 2002, the MV Ali Cat was brought onto the town centre route to provide peak hour passenger only services. As can be seen here this contributed to an increase in the number of sailings undertaken from 2003 onwards. After a drop in 2003 and 2004, from 2005 onwards, there



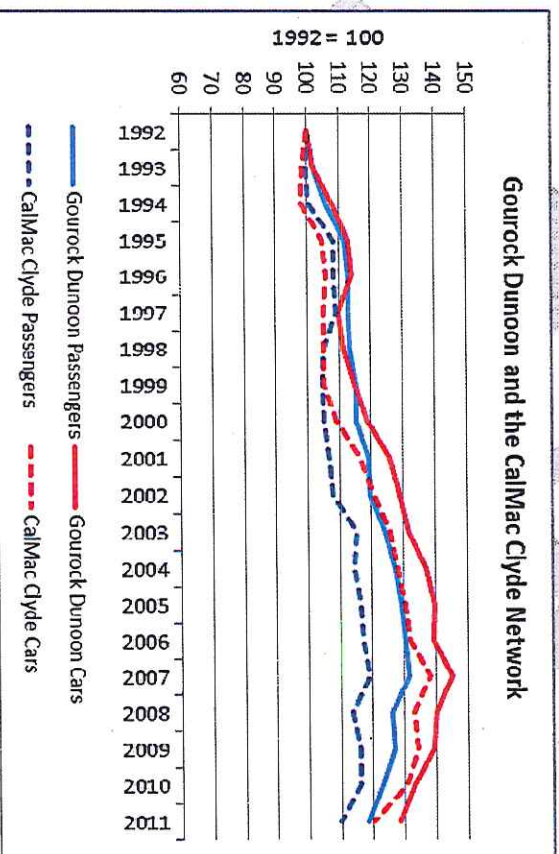
were around 10,500 Streaker sailings, the same figure as in 2001. This measure may have contributed to the decline in CalMac figures although the trend of decline was long term.

- 2.9 Over this period (1992-2008) CalMac / Cowal car volumes dropped steadily by 42%, whilst Western car volumes increased dramatically by 70%. Total route volumes grew by 40% to 2008 (higher than the rate of passenger growth), but dropped by 8% from 2008 to 2011, meaning that current volumes are still 28% above 1992 levels. Between 2008 and 2010 (the last full year of operation), Cowal / Argyll had declined by a further 14% whilst Western boardings were broadly flat between 2008-11 (down 2%) and volumes across the route declined by 8% overall.

- 2.10 Both passenger and car total route volumes therefore peaked in 2006-08 and have dropped steadily thereafter with the onset of the current economic difficulties. Car carryings between 1996-97 was the only significant negative growth in the whole period up to 2008, ie both passenger and car traffic consistently grew year on year in all these years. Since then there was a small growth in passenger volumes in 2008-09 but otherwise the picture is one of decline. Within these totals, the familiar trend of a switch from CalMac to Western Ferries is well seen.

How do these trends compare to the wider CalMac Clyde network?

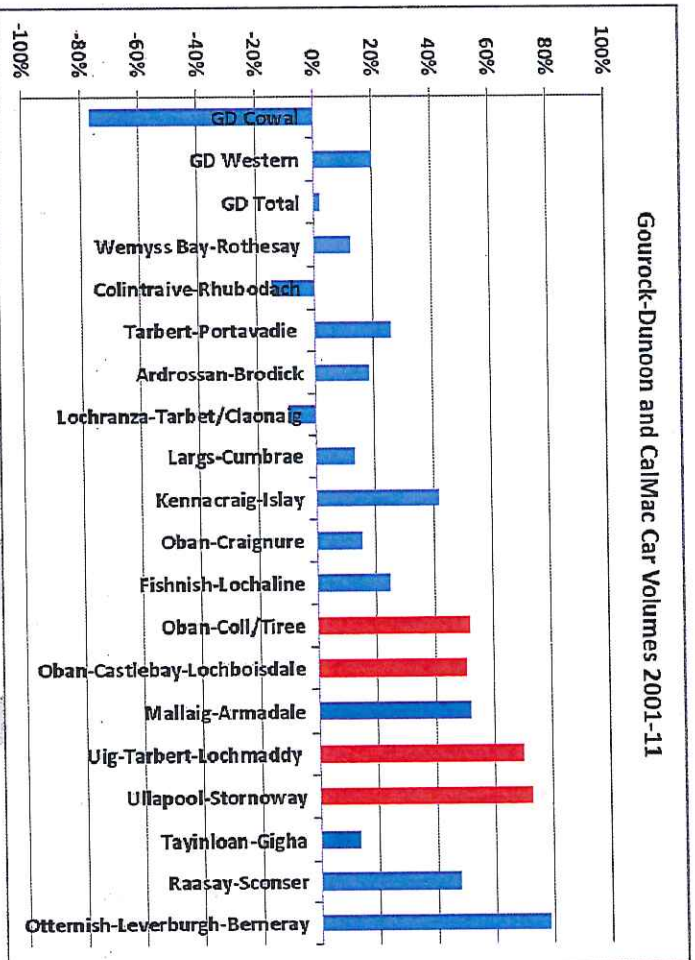
- 2.11 To see if the above Gourock-Dunoon trends are typical or not, the graphic below shows total Gourock-Dunoon (ie CalMac + Western) passenger and car volumes together with the aggregated data for the wider CalMac Clyde network (ie Wemyss Bay-Rothesay, Colintraive-Rhubodach, Tarbert-Portavadie, Ardrossan-Brodick, Lochranza-Tarbert/Claonaig, and Largs-Cumbræe) for 1992-2011, indexed with 1992=100.



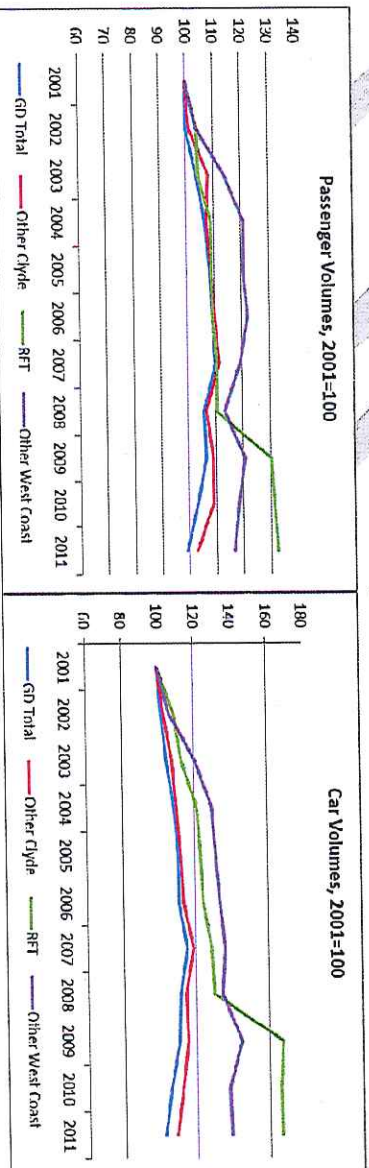
- 2.12 It can therefore be seen that total volumes on the Firth of Clyde grew at a faster rate than the rest of the Clyde CalMac network for both passengers and cars over this long time period.

- 2.13 However it should be noted that in the last decade, both passenger and car growth rates for Gourock Dunoon (CalMac + Western) have lagged behind the wider Clyde network (-0.8% versus +3.0% for passengers and +2.0% versus +8.5% for cars).

2.14 Even within the Clyde network aggregate figures, there are large differences though. As an example, the figure below shows the change in car boardings for all significant CalMac routes (>10k cars in 2011) between 2001 and 2011. The routes which were subject to the pilot RET fares programme are shown in red.



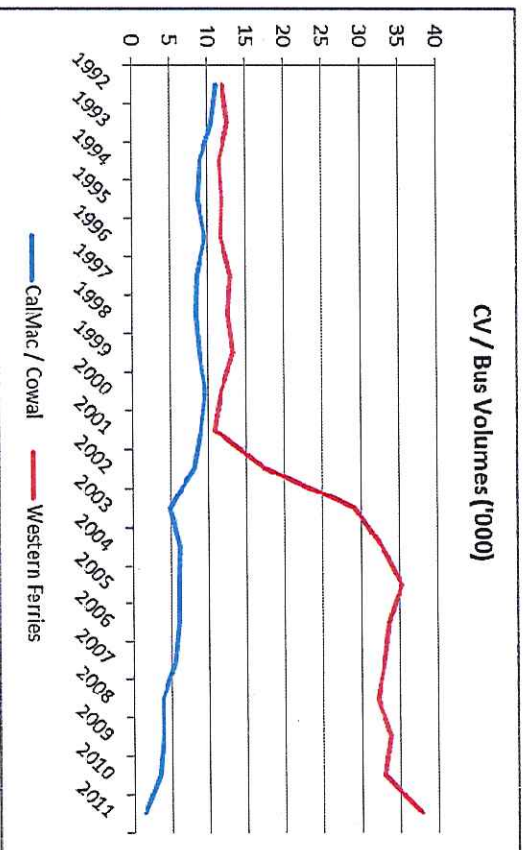
2.15 The largest growth rates are therefore generally associated with RET routes. Across the Clyde network, there is a mix of growth and decline concealed within the aggregate picture and in general there has been higher growth across the West Coast network. This is explored further below where, for further context, the trends for the past decade on Gourock-Dunoon and the Clyde CalMac network are contrasted with trends for the wider CalMac West Coast network (separating RET routes from non RET routes).



2.16 These figures confirm that volumes on Gourock-Dunoon have lagged behind the wider Clyde network since 2009 (passengers) and 2005 (cars) to some extent. On the West Coast network (ie all other CalMac routes), a pronounced spike can be seen in 2009 on the RET routes with the first full year of these cheaper fares. Since then these routes have plateaued. In general though all routes on the West Coast grew at a faster rate than Clyde routes since 2000.

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- 2.17 The period between 1992 and 2006-08 covers a period of growth in terms of the UK economy, albeit the rate of growth varied across this period. During this period:
- car carryings on the Gourrock Dunoon routes grew by 40% and passenger numbers by 26%;
 - this equates to around 2.3% (car) and 1.9% (passenger) per annum respectively;
 - across the whole CalMac Clyde network over this period (excluding Gourrock Dunoon) the average annual growth rate was 2.2% (cars) and 1.2% (passengers);
 - so during this period volumes on Gourrock Dunoon grew slightly faster than the wider CalMac network in the area; and
 - over the period 1995-2007 (comparable data for 1992-1994 is not available), Scottish total road traffic levels grew by around 1.6% per annum, so ferry traffic grew ahead of national trends during this time.
- 2.18 Note that the population of Dunoon grew somewhat during this period so this growth comes from an increase in residents as well as a propensity for people to travel more with increasing prosperity and car availability during this period.
- 2.19 Since the peak years (2006 for passengers and 2008 for cars (excluding 2007)) and the onset of the financial crisis:
- on Gourrock Dunoon, combined car volumes have dropped at an average of 2.9% per annum and passenger volumes have dropped by 2.4% per annum on average;
 - across the CalMac Clyde network (excluding Gourrock Dunoon), the equivalent figures are declines of 1.7% (car) and 1.6% (passenger) per annum, so Gourrock-Dunoon has declined at a faster pace over this period;
 - over the period 1907-2011, Scottish road traffic levels fell by around 0.7% per annum, so ferry traffic has declined faster than national trends.
- 2.20 As such the overall trends on Gourrock Dunoon are similar to the CalMac Clyde network although the quantum of change varies. Ferry volumes tend to accelerate and decline faster than general road traffic.
- CVs / Buses**
- 2.21 The long term data for CVs and buses is less useful due to a change in Western Ferries data in 2002-03 (this is noted in STS as "The operator indicated that this figure may not be directly comparable with previous years"). We are seeking a fuller explanation of this change.
- 2.22 For the record the data for CalMac / Cowal and Western Ferries is shown in the figure below.
- 2.23 Putting the Western figures to one side, it is clear that the long term decline on CalMac / Cowal volumes seen for passengers and cars is also evident for CVs / buses.



Average Loadings

2.24 Western Ferries typically operate around 30,000 crossings per year, and in 2010 there were 10,600 crossings undertaken by Cowal Streakers (plus 1,600 AllCat sailings). The annual average carryings in 2010 were therefore:

- Cowal: 6 cars and 41 passengers per crossing; and
- Western: 19 cars and 44 passengers per crossing.

Historic Perspective

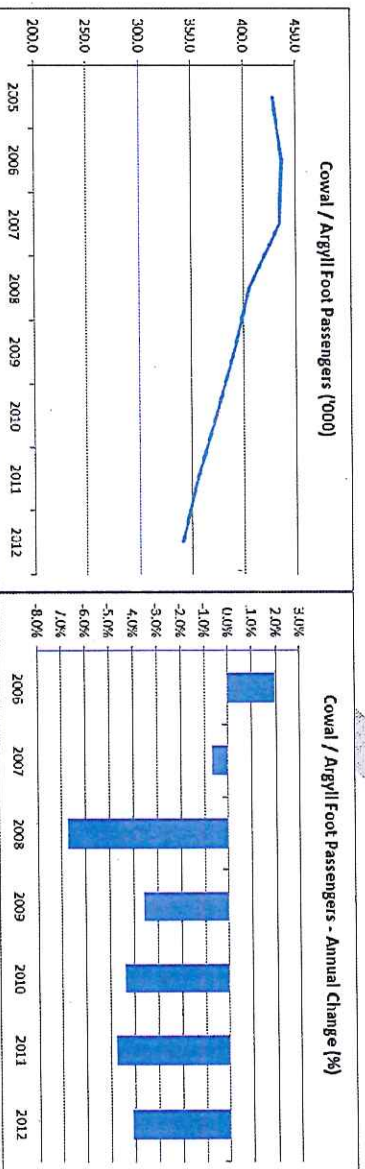
2.25 Data relating to the Gourrock-Dunoon routes from the 1970s and early 1980s is contained in the Monopolies and Merges Commission Report of 1983. Aggregate data from CalMac / Cowal and Western Ferries for 1974, 1980, 1990, 2000 and 2010 is shown below.

	1974	1980	1990	2000	2010
'000					
Total Passengers	1,259	1,086	1,513	1,698	1,813
Growth		-14%	39%	12%	7%
Total Cars	260	277	445	558	626
Growth		7%	61%	25%	12%
Total CVs / buses	19.6	14.9	27.7	21.4	36.5
Growth		-24%	86%	-23%	71%

2.26 The MMC report notes that the 1980 figures were significantly affected by the recession of that time. A pattern of **slowing growth** from 1980-90, 1990-2000 and 2000-2010 clearly emerges for both the passenger and cars data. The CVs / buses data is much more volatile as noted above.

Foot Passengers

- 2.27 The first task for this study is to assemble cost and revenue scenarios relating to a foot passenger only service between Dunoon and Gourock town centres.
- 2.28 As such we need to know the foot passenger market as distinct from the total passenger market.
- 2.29 We have data relating to Cowal and Argyll Ferries from 2005 to 2012 (no specific data relating to foot passengers is available before this date) and this is shown below. Specific foot passenger data from Western Ferries is not available so we do not know with certainty at this stage the overall size of the foot passenger market.



- 2.30 This again suggests that the economic downturn from 2007 has had a significant impact. Importantly, the reductions in foot passenger numbers precedes the change to the Argyll Ferries' service in summer 2011, when despite increased vessel frequency, passenger numbers have continued to decline into the full calendar year of 2012.
- 2.31 A further issue here is that **McGill's buses** commenced a Dunoon – Gourock – Braehead – Glasgow service in August 2008 via Western Ferries. This was the first through bus service to operate from Dunoon – ie passengers do not generally have to disembark at either end or on the ferry and they pay an inclusive bus fare – ie they do not pay a separate passenger ferry fare. This service is also free end-to-end for holders of the National Entitlement Card and as such represents significant 'competition' to a town centre passenger service.
- 2.32 Typical journey times are around two hours from Dunoon town centre to Glasgow (although some peak hour services which omit Braehead have shorter journey times). Typical Dunoon to Glasgow journey times by passenger ferry and train are 75-100 minutes so the ferry / train option does still hold a time advantage over the bus which is clearly very important for regular commuters.
- 2.33 This McGill's bus also therefore also provides a Dunoon to Gourock town centre service which would be free to Entitlement Card holders.
- 2.34 We have no figures for the usage of this McGill's service, but there are currently 10 return crossings per weekday, nine on a Saturday and six on a Sunday, adding up to over 6,000 bus journeys per annum. Assuming an average bus occupancy of eg nine persons, this service would account for around 61k people. There is however no obvious spike in the reported

Western Ferries passenger figures or indeed bus / CV figures corresponding to the introduction of this service (ie 2009 full first year). It therefore has to be assumed that these increases are:

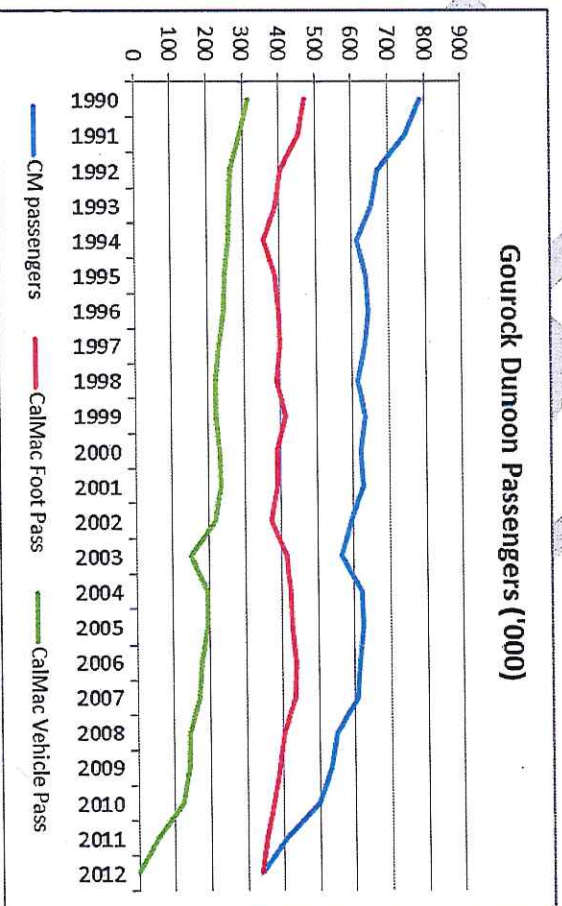
- (i) significantly less than 60k, implying a low bus occupancy figure;
- (ii) transfers of existing Western foot or vehicle passengers to the new bus (ie no net gain); and / or
- (iii) they are counteracted by reductions in other parts of Western's business.

2.35 Holders of a National Entitlement Card do currently receive discounted fares on Argyll Ferries with a fare of £1.20 return. This is an important issue as Dunoon has a higher proportion of people of pensionable age (24%) compared to the Scottish average (20%) (SNS, 2011 figures)¹ therefore this represents a significant market segment and source of revenue to any potential operators via the SPT reimbursement scheme. In this reimbursement scheme, adding the fare paid and the reimbursement, total operator income is around 67% of the standard fare.

2.36 In 2009 and 2010 passenger carryings on Gourock Dunoon dropped at a faster rate than the rest of the Clyde CalMac network. This may in part be attributed to the new McGills bus service. Had Gourock Dunoon followed the same pattern as the rest of the Clyde network in these years, passenger boardings would have been around 30k higher than they were. The broadly corresponds to a 30k drop in foot passengers on Cowal between 2008 and 2010.

2.37 In addition figures from Cowal Ferries for SPT Concessionary Fares show a drop of 18.5k from 104,250 in 2008 to 85,800 in 2010 which suggest a switch from town centre ferry to McGills bus.

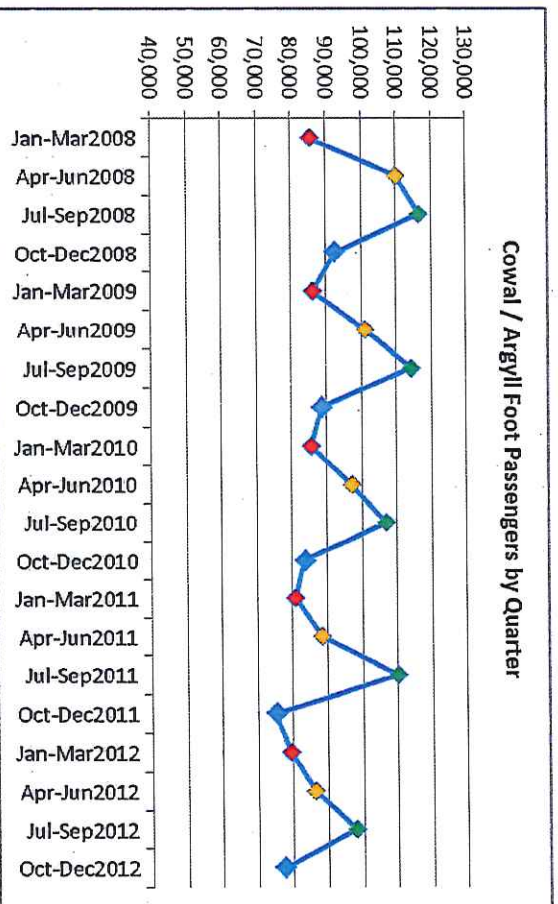
2.38 The figure below shows CalMac passenger figures split by foot passengers and vehicle based passengers. The foot passenger figures pre 2005 are estimated, assuming the 2005 car occupancy figure of 2.16.



¹ <http://www.sns.gov.uk/Reports/Report.aspx?ReportId=2&AreaTypeId=1&AreaId=502000135>

2.39 It can therefore be seen that the foot passenger market was relatively stable between 1992 and 2008 hovering around the 400k mark. By contrast, the trend for vehicle based passengers shows a steady decline.

2.40 This is shown in more detail below where the quarterly foot passenger boardings from 2008 to 2012 are shown.



2.41 It can be seen that the first quarter of Argyll operation (July to September 2011) saw carryings increase relative to the same quarter in the previous year. Thereafter the picture is of year on year decline, despite Argyll's higher frequency service and longer operating day. October - December 2012 has seen something of a recovery from 2011 however. Some of the pre-Argyll decline seen here can be attributed to the McGill's bus service discussed previously.

2.42 From the Cowal / Argyll Ferries data we can estimate the number of passengers per vehicle carried on the ferry, ie by subtracting the foot passengers from total passengers data. This figure has declined from 2.16 persons per car in 2005 to 1.9 in 2008-2010. The national average car occupancy figure is 1.57 at present so occupancy levels on the ferry are higher, which seems intuitive.

2.43 As noted above, we do not have figures from Western in relation to Foot Passenger numbers. However, it is possible to use the data to make an **estimate of Western Ferries foot passengers** for 2010. The key issue here is that we do not know the number of foot, car and bus-based passengers carried on Western Ferries. We also do not know how many vehicle based passengers travel in a CV or a bus. So:

- from the McGill's timetable we can estimate that there are 6,760 crossings per year;
- national statistics suggest that the average bus loading is nine passengers, CVs can be assumes as single person occupancy;
- STS road traffic statistics suggest that on rural roads there is an 85% / 15% split in terms of total CVs / buses;
- we can therefore estimate the number of buses and CVs carried by each operator and thus the number of passengers carried by each vehicle type;

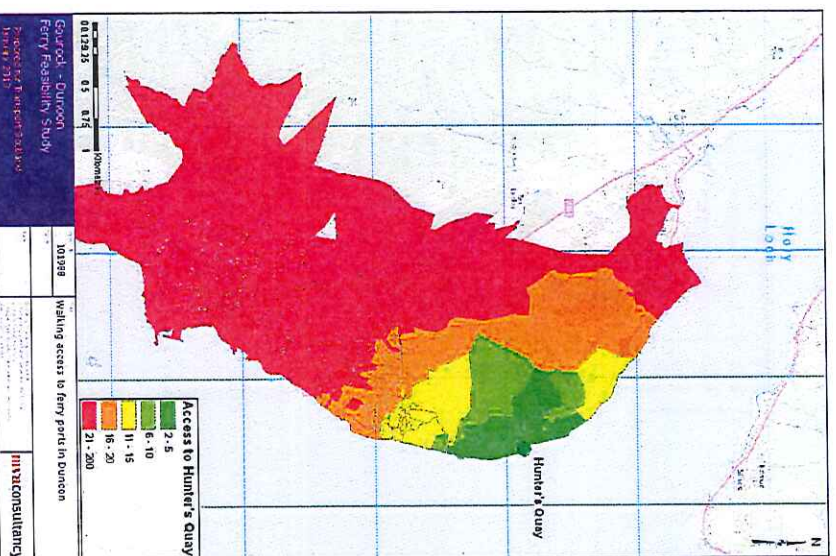
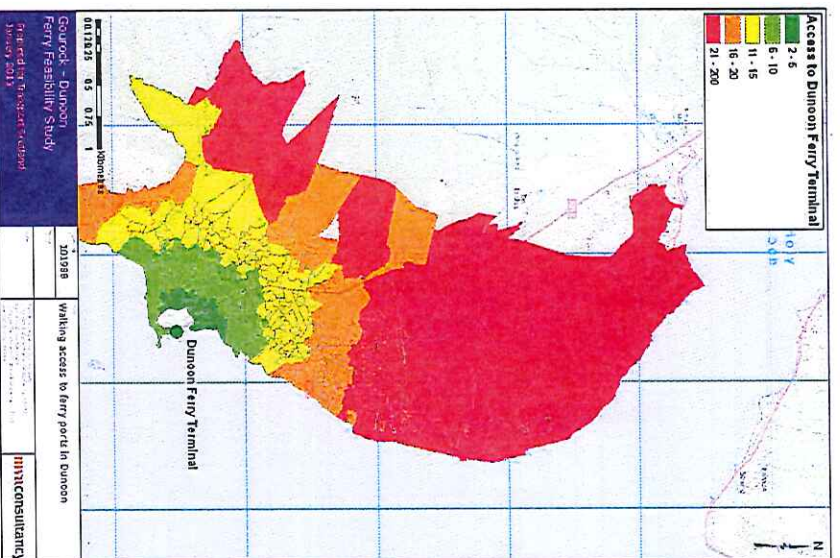
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- we can then deduce the passengers carried by car on Cowal ferries and apply this to Western Ferries car volumes to obtain estimates of Western car passengers;
- we can then estimate foot passenger volumes on Western by deducting all vehicle based passengers from the total;
- the end result of this process is that Western held a 36% share of bus / foot passengers and Western held a 64% share; and
- these foot / bus proportions are likely to have shifted further towards Western since 2010.

Published Data 2010	Cowal	Western
a. Total Passengers	499,228	1,313,800
b. Foot Passengers	373,690	Not Available
c. Total Cars (vehicles)	61,400	564,200
d. Total CVs / Buses (vehicles)	3,462	33,000
Estimated Data		
e. McGills Buses veh		6,760
f. McGills Buses pass (e * 9)		61,192
g. Other buses veh (15% of total cv / bus (net of McGill's))	534	4,044
h. Other buses pass (e * 9)	4,909	37,207
i. CVs (85% of total cv / bus (net of McGill's))	2,928	22,196
j. CV passengers (i * 1)	2,928	22,196
k. Car Passengers (a-b-h-j)	117,701	
l. Passengers / car (k/c)	1.92	
m. Car Passengers (l * c)		1,081,543
n. Foot Passengers (a-f-h-j-k)		110,663
Summary of estimates		
Foot Passengers	373,690 (77%)	110,663 (23%)
Bus based passengers	4,909 (5%)	99,399 (95%)
Car / CV based passengers	120,629 (10%)	1,103,738 (90%)
Foot / Bus total	378,599 (64%)	210,062 (36%)

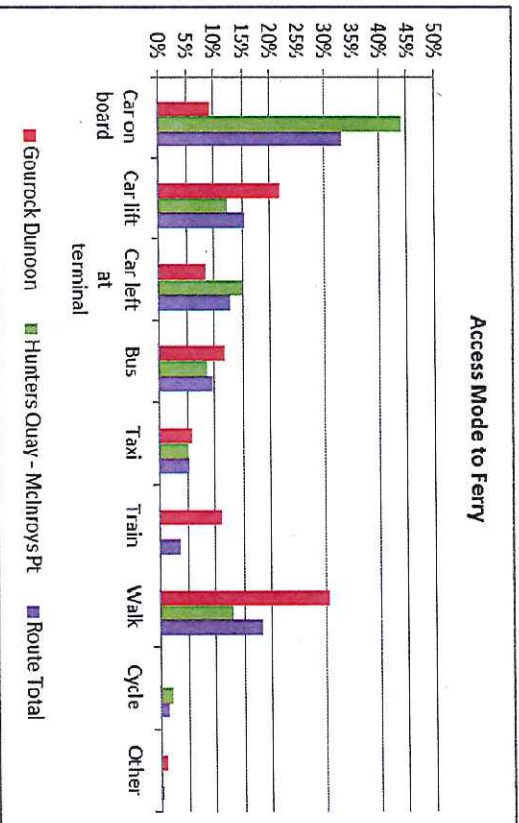
2.44 It is also important that we consider the foot passenger 'market' separately, as it does not 'compete' to the same degree with Western Ferries as a vehicle ferry would. It could reasonably be expected that proximity to Dunoon town centre and Gourrock railway station would mean that most foot passengers would be expected to use that route, particularly now with the half hourly service in place – although clearly the Western / bus option is a key competitor, especially for Entitlement Card holders.

2.45 Proximity to each ferry terminal is clearly a key issue for Dunoon residents. The graphics below show walk times from the Dunoon area to Dunoon ferry terminal and Hunter's Quay respectively.



2.46 When translated into figures, this analysis graphics suggest that Hunter's Quay is the closest location for 29% and Dunoon for 71% of local residents. The data also shows that 48% of local residents can walk to Dunoon within 15 minutes compared to only 10% for Hunter's Quay. However Gourk is clearly a more convenient location for most on the south side of the Clyde.

2.47 The foot passenger market is more complex than it may appear at first site, as the figure below illustrates showing the mode people used to access the ferries. This data is taken from on-board surveys (on both CalMac and Western vessels) undertaken in 2007 (August and November surveys were undertaken, so the data is a good representation of trends across the year).



2.48 This data shows that significant proportions of foot passengers arrive at the terminal by car (lift and car left at terminal), bus and taxi. Even the town centre service saw only around 30% of passengers walking to the ferry. Clearly if driving / parking or getting a lift to the terminal, then the choice between Dunoon and Hunter's Quay is more open (ie it is not dependent on walk distance / time), depending on onward travel arrangement at the other side, and as such the town centre service may not be the preference for all.

2.49 This is explored in more detail below where access and egress modes are reported for each ferry service split by Cowal residents and 'others'.

	Cowal Residents (2007)	Car	Bus	Walk	Train	Other
To / From G-D		37%	18%	24%	16%	5%
To / From Western		71%	9%	11%	0%	8%
Others (2007)		Car	Bus	Walk	Train	Other
To / From G-D		44%	7%	35%	6%	8%
To / From Western		86%	1%	8%	0%	5%

2.50 A number of points emerge from this:

- car is clearly the main access mode for Western Ferries, with almost double the proportion of Cowal Ferries;
- use of a car is higher amongst non Cowal residents, particularly to Western Ferries; and
- Cowal residents are bigger users of public transport.

2.51 With any ferry service, a number of people use a car at either end of the journey, but travel as a foot passenger on the ferry – generally getting a lift at one end and leaving a car at the other. In this case, convenient parking is a more significant factor in the choices made. There was evidence of this behaviour in the 2007 surveys.

Who Uses these Ferries?

- 2.52 The 2007 on-board surveys provide a valuable data source in terms of the users of these ferry services.
- When weighted by frequency of travel, the data suggest that around 75% of the sample of all journeys made across the two routes were undertaken by Cowal residents.
 - The data also suggests that Cowal residents favoured Western Ferries (71% / 29%) compared to non Cowal residents others (62% / 38%).
- 2.53 As such it is useful to **consider these two groups separately (ie 'Cowal residents' and 'others')** in terms of their cross Firth of Clyde choices as there is evidence to support this.
- 2.54 In terms of journey purpose, the 2007 surveys found that around 45% of journeys undertaken on the ferries were commuting to / from regular place of work underlining the importance of the ferries for this purpose. Some 18% were personal business, 16% were shopping / leisure, 9% were visiting friends and relatives, and 7% were on employer's business.

3 Revenue

- 3.1 It is important to understand the revenues currently generated on the route to understand the context for potential revenue on variants of the Gourrock Dunoon town centre service.
- 3.2 There is a wide range of fare types available across the two ferry operators and we do not have a full breakdown of tickets sold by type and fare for both operators, including all the various discounts offered. In seeking to estimate the level of revenue likely to be generated by any new service, it is therefore more accurate and manageable to work back from the average 'outturn' revenue per journey made, ie the average fare paid across all the fare types which are available. As such it would not be realistic to assume that the fares paid by users any new ferry service would be the full published fare, given this evidence.

3.3 The Table below shows volumes, revenues and average outturn fare paid on Cowal Ferries in 2009 and 2010.

Cowal Ferries	Volumes		Revenue		Revenue per trip (£)	
	2009	2010	2009	2010	2009	2010
Passengers	533,479	499,234	£1,094,900	£1,133,600	£2.05	£2.27
Cars	70,717	61,443	£393,700	£354,200	£5.57	£5.76
CVs / Coaches	3,844	3,462	£119,900	£109,000	£31.19	£31.48
Total Revenue			£1,608,500	£1,596,800		

3.4 Retail (£170k) and Other (£50k, mainly freight and Post Office) revenue added around £220k in each of these years. It is notable that outturn fares are well below the published standard

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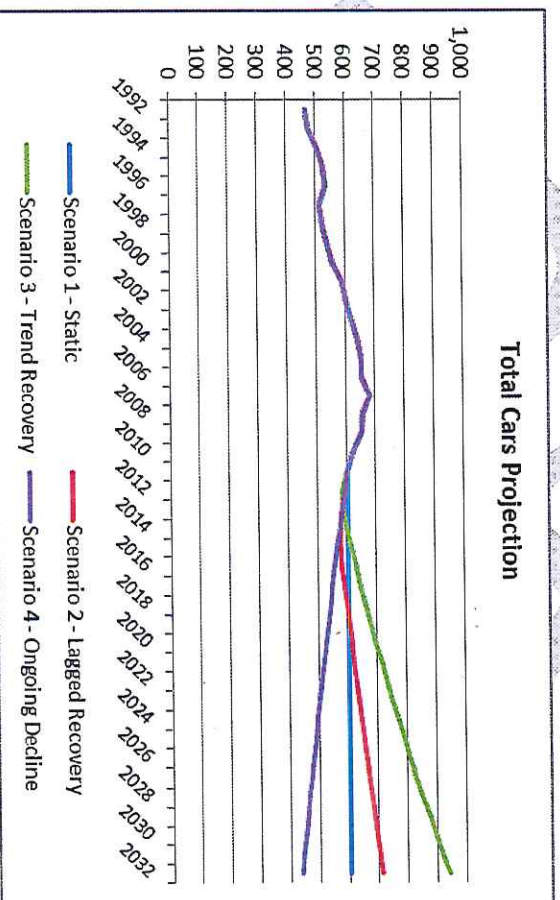
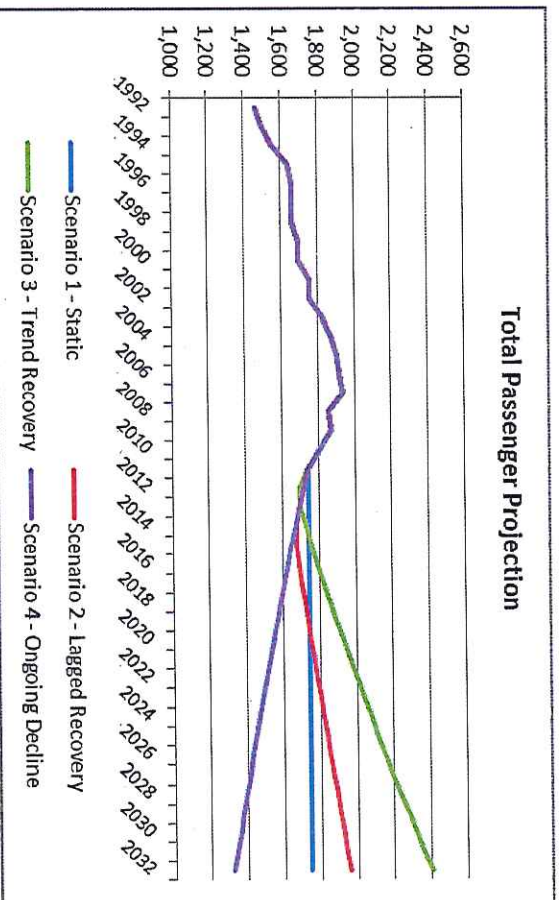
- fares, due to the widespread use of 'bucket shop' multi-journey tickets bought locally which reduce published fares by up to 50%.
- 3.5 Western Ferries published turnover (ie assumed ticket revenue) data for the same two years is: £6.003m (2009), and £6.024m (2010).
- 3.6 For the record, total route revenue was therefore around £7.6m in both 2009 and 2010.
- 3.7 Western Ferries do not publish any disaggregation of these total revenue figures, ie we do not know how much is generated by passengers, cars and commercial vehicles / buses separately. However, we can take the inferred average fares paid carried on Cowal Ferries per passenger (£2.27 in 2010), car (£5.76 in 2010) and CV / Coach (£31.48 in 2010) and apply these fares to the Western Ferries published volumes. Using these figures the resulting revenue estimates for Western revenues are 17% higher than Western's published revenue in 2009 and 2010. This implies that the **outturn revenue per passenger / car / cv on Western Ferries is lower than was the case with Cowal**. This may reflect a higher proportion of 'local' discounted traffic on the Western route. Cowal may have attracted more occasional travel, perhaps from those unfamiliar with the area – hence paying higher, undiscounted fares. If applied evenly this would suggest that average 2010 outturn revenues on Western were £1.88, £4.78 and £26.13 for passenger, car and CV/Coach respectively (we are in the process of obtaining definitive locally available fares from Western Ferries).
- 3.8 Note also that McGill's bus based passengers and holders of SPT cards do not pay a ferry fare on Western Ferries. This will have the effect of lowering the average revenue per person / car / cvs / buses carried.
- 3.9 So the mix of passenger types and fares paid on Western Ferries resulted in a lower average outturn revenue. On the face of it though the published fares are / were very similar. This creates an issue in terms of what level of fares revenue we assume for additional passengers and cars on the new service – is it Cowal or Western fares? As a central assumption, we will **assume that passengers and cars attracted to proposed new town centre services would buy tickets in a similar proportion to before – we therefore assume that a passenger will generate £2.27 (2010 prices) and car will generate £5.76 in revenue.**
- ## 4 Projections
- 4.1 A two-step process to demand forecasting is being undertaken:
- Step 1: Define scenarios in relation to the total volume of travel across the Firth of Clyde; and
 - Step 2: Estimate the market share accruing to Western and Gourrock-Dunoon under a number of service scenarios.
- Step 1: Define Market Volume Scenarios**
- 4.2 Having analysed the trend data on the Firth of Clyde in Section 2, the key issues in any projection are:
- when will growth resume with the anticipated economic recovery?

- at what rate will growth resume in relation to recent trends?;
 - would the addition of a second car ferry between Gourock and Dunoon 'generate' significant demand?; and
 - in the longer term, is there a 'saturation' point for volumes on these crossings, i.e. growth cannot continue indefinitely without significant population growth?
- 4.3 The relationship between Scottish **economic growth** and Gourock Dunoon volumes is complex. Total car and passenger volumes have drifted steadily and consistently down between 2007 and 2011, despite the economy suffering a sharp fall in 2009, rebounding in 2010 and contracting again in 2011. Car ferry volumes have dropped much faster than national traffic volumes since 2007 and were growing at a faster rate than national traffic between 2000 and 2007. This suggests volumes here are more volatile than national traffic. It is therefore not obvious that volumes on the route will immediately increase with economic growth. For example the economy grew between 2009 and 2010, yet passenger and car volumes dropped. As such, economic forecasts are probably not the most reliable basis for forecasting here, and a trend based approach may be more appropriate.
- 4.4 In terms of **population**, the GROS projections for the Argyll and Bute Council area suggest a **7% drop** in population between 2010 and 2035. There are no sub-local authority projections available. GROS estimates of the population of the settlement of Dunoon (which includes Sandbank) suggest that the population grew from 8,950 in 2003 to 9,410 in 2010; a growth of around 5% which will account for some of the growth seen in this period.
- 4.5 A prospective starting year for the analysis any new service has been agreed as 2015 and the assessment period is 15 years.
- 4.6 As suggested above, although volumes are currently dropping, it would seem reasonable to assume that travel volumes across the Clyde will begin to increase again when the economy recovers and in particular when real incomes start increasing, and we can develop a number of different growth scenarios to explore the sensitivities of the outcomes reached here to this.
- 4.7 **The total volume will of course also be determined to some extent by the nature of the ferry services in operation (ie service frequency and price) and this will be accounted for, in terms of changes from current level of service.** In the decade or so up until July 2011 there had been a very stable supply side, with no major changes to frequencies, fares, operating day etc.
- 4.8 The commencement of a half hourly foot passenger only service, together with a much longer operating day, has not led to any increase in foot passengers. However the issues surrounding the vessels currently in use makes it difficult to draw any conclusions from this.
- 4.9 Some potential whole route scenarios are outlined below:
- Scenario 1 'Static' – base all cost and revenue estimates on 2011 total route volumes;

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- Scenario 2: 'Lagged Recovery' – volumes pick up at say 50% of trend rates² following economic recovery. Say 50% of trend reductions to 2014, then gradual recovery;
- Scenario 3: fast recovery – say volumes stabilise in 2013 the resume trend growth from 2014 onwards; and
- Scenario 4: ongoing decline – assume volumes continue to drop at say 50% of current rates.

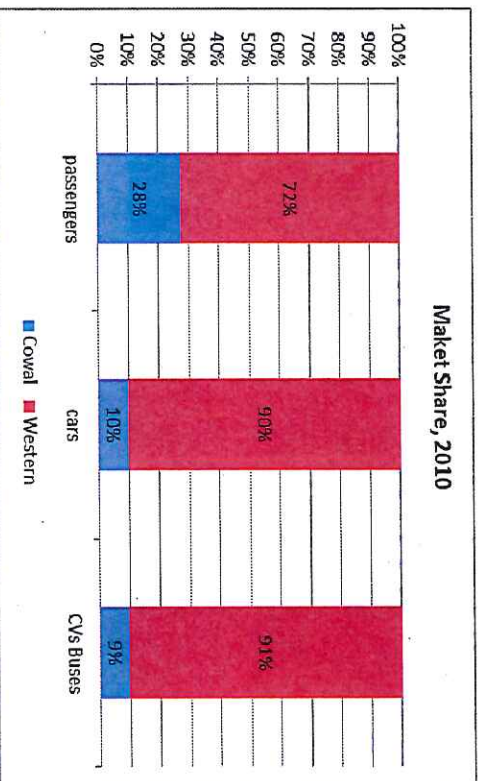
4.10 These four scenarios would give rise to the following illustrative projections.



Step 2: Estimate Market Share

² Trend rates can of course be taken from different starting points. In this case a trend from 1992-peak (2006 for passengers and 2008 for cars) would give values of 1.9% and 2.5% per annum for passengers and cars respectively. If a later time series is taken (eg 2000-peak) the values are 2.1% and 2.4% respectively. We will test a number of these assumptions.

- 4.11 2010 was the last full calendar year when both passenger and vehicle ferries were operating. The market share between Cowal and Western is shown below.



- 4.12 What determines these choices? The choice between the two ferry services will have been influenced by:
- Quantifiable elements: Fares, frequency, length of operating day, location of terminals etc; and
 - Less quantifiable elements: ticketing practices, presence of train link at Gourrock, getting a lift to terminal etc;
- 4.13 The Ferries Review Stated Preference Study undertaken for Transport Scotland produced a series of parameter values which can be used to inform the modelling of ferry services.
- 4.14 The process we are currently developing involves:
- Code up generalised cost functions for each ferry service based on SP work noted above;
 - Synthesise a broad Origin-Destination matrix for foot passengers and cars / car based passengers, for Cowal residents and Others – based in part on the 2007 survey data;
 - Calibrate a choice model for the split of foot passengers and cars / car based passengers to the 2010 carryings data
 - this will require route specific constant to account for unquantifiable elements;
 - summed across the matrices this will recreate the annual figures
 - develop a number of trend based forecasts for demand across the Firth (foot passengers, cars / passenger, CVs / buses) as described above;
 - **Adjust these using a route elasticity for the total number of crossings relative to the 2010/11 situation** if, ie the final year of Cowal's operations;
 - Growth up our base year demand matrices in line with route projections;
 - Apply calibrated choice model; and therefore
 - Determine new market shares based on service characteristics together with the resulting boardings and revenues.

- 4.15 This approach allows us to use an evidence-based and systematic approach to forecasting the use of a Gourrock – Dunoon town centre ferry service.

5 Incremental Approach

- 5.1 The key question here remains: Will the additional revenue generated by a vehicle and passenger ferry be greater than the potential incremental increase in costs associated with running a vehicle and passenger ferry?

Revenue

- 5.2 We have seen that outturn revenue on Cowal Ferries was £2.27 per passenger carried and £5.76 per car carried. Assuming the 2010 Cowal average vehicle occupancy, we can therefore assume that the carriage of a single car on a new passenger and vehicle service would generate $£5.76 + (2.0 * £2.27) = £10.30$ in additional revenue.

Costs

- 5.3 There are a number of potential sources of additional cost associated with moving from a passenger only to a vehicle and passenger service. The main components of cost as reported by Cowal Ferries were (in descending order of magnitude): (i) crew; (ii) harbour dues and access costs; (iii) shore; (iv) fuel; (v) ship lease / charter costs; and (vi) management services / other admin. These six cost items accounted for more than 90% of total costs. Taking each of these in turn:
- 5.4 **Crew:** additional crew are likely to be required to marshal vehicles on the ferry;
- 5.5 **Harbour Dues and Access Costs:** 'Pier' / 'Traffic' dues accrue to passengers and vehicles carried and 'Access' or 'Harbour' dues are payable in relation to the tonnage of the vessel. Each passenger or car carried on a single crossing is liable for pier / traffic dues at Dunoon and Gourrock as follows:
- Dunoon: Harbour / Berthing - £0.077 per GRT; Pier - £0.31 per adult, £0.96 per car
 - Gourrock: Harbour / Berthing - £0.33 per GRT; Pier - £0.40 per adult, £1.76 per car
- 5.6 Until now CMAL has operated a heavily discounted Harbour Dues and Pier Dues tariff regime at Gourrock. Discounts of up to 95% are offered for regular harbour users. This has the effect of discounting the above rates by 90-95%. No discounts are operated at Dunoon. However, as of 1 April 2013, **CMAL discounts on Pier Dues will cease** meaning that the full rate will be payable. In addition, the Berthing Dues discounts will reduce somewhat. At present calls between 100 and 2100 attract an 80% discount and this will fall to 40% by 2017. However, discounts of 90% and 95% will continue to apply to the calls 2,100 and 5,100 and beyond 5,100. Any ferry service between Gourrock and Dunoon would therefore continue to be eligible for heavy discounting on Berthing Dues but would have to pay full Pier Dues.
- 5.7 This implies that a car plus two passengers would be liable for $(£0.31 + £0.40) * 2 + £0.96 + £1.76 = £4.14$ in Pier / Traffic Dues. Thus £4.14 of the £10.30 outturn revenue (40%) is 'lost' to Pier / Traffic Dues.
- 5.8 In addition, the likely greater tonnage of the vehicle and passenger ferry will be liable for higher Berthing Dues, although the ongoing discounts at Gourrock do diminish this additional cost.

- 5.9 **Shore:** Additional shore based crew will be required for the marshalling of vehicles.
- 5.10 **Fuel:** This of course is vessel dependent but a vehicle and passenger ferry is likely to require more fuel than a foot passenger vessel, by virtue of its tonnage.
- 5.11 **Ship Lease / Charter Costs:** again clearly very variable and dependent upon second hand / new build markets, but, for a given set of sea conditions and harbour dimensions, a vehicle and passenger ferry will in all likelihood be more expensive than a passenger only vessel (eg if building both vessels from new).
- 5.12 **Management services / other admin:** these costs are perhaps less likely to increase unless a per-booking regime were introduced which would not seem likely. Also this would depend on whether an operator already had a 'back office' in place or not, but in terms of any incremental increase, this is likely to be small.
- 5.13 So there are a range of costs which are likely to be associated with operating a vehicle and passenger ferry, as opposed to a passenger only ferry.
- 5.14 Together with the Maritime Group, we are continuing to work on the potential magnitude of these cost increases.

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