

Parking Management + Telematics

Tools in a Toolkit

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Parking Management

Background

Parking Demand - Ireland

- Number of registered vehicles in circulation (2.3 million)
- Usage - average distances travelled per vehicle (12,000 miles pa)

Vehicles in Ireland 1976 vs 2006

'000s	<u>1976</u>	<u>2006</u>	<u>Change</u>
All Vehicles	725	2,296	217%
Private cars	551	1,779	223%
Population	3,100*	4,240	36%
Private cars/'000s	178	420	136%

* estimated as there was no census in 1976

The average private car is parked for a minimum of 95% of its life.

Categories of Parkers – Different Patterns of Demand

Short Stay Parking (less than 4 hours)

Shoppers/tourists

Convenience shoppers park for less than 1 hour

Comparison shoppers park for 2 to 4 hours

Tourists can park for extended periods depending on nature of the attraction

Visitors to businesses, hospitals, churches

Typically park for short durations

Service & support

Service engineers can park for half or whole days but typically park on an occasional basis

Deliveries

Daily deliveries of perishables usually involve short stops

Large deliveries of heavy goods tend to be occasional and of longer duration

Parents dropping off/picking up at schools or creches

Mostly short duration but high volume in very confined spaces

Long Stay Parking (+4 hours)

Commuters – workers – 8 or 9 hours x 5 days per week

Students – 2nd & 3rd level – 7 to 9 hours x 5 days/week Sept to June

Residents – evenings, weekends and some 24/7 parking

Air Travellers – meet & greet, short hop, long haul – ranges from a few minutes for drop off/pick up to 4 or 6 weeks for long vacations

Car dealerships, importers – storage of new cars for distribution early in the new year can see cars parked for months. Distributors sometimes park cars for sale on public roads.

The latest census data (2006) on **Travel to Work** patterns of over 15s showed that 63% travelled to work by car slightly up on the 62% in the 2002 census.

Travel to Work - 2006 Census

000's	Without Access to Car		With Access to Car		Combined	
On Foot	71.5	36.8%	125.4	7.7%	196.9	10.8%
Bicycle	12.1	6.2%	23.1	1.4%	35.2	1.9%
Bus	40.3	20.8%	70.5	4.3%	110.8	6.1%
Rail	10.2	5.3%	42.9	2.6%	53.1	2.9%
Motor Bike	2	1.0%	10.6	0.6%	12.6	0.7%
Car - driver	16.8	8.7%	1,033.7	63.2%	1,050.5	57.4%
Car - passenger	17.1	8.8%	85.1	5.2%	102.2	5.6%
Total by Car	33.9	17.5%	1,118.8	68.4%	1,152.7	63.0%
Lorry/Van	4.4	2.3%	133.2	8.1%	137.6	7.5%
Other	1.3	0.7%	4.9	0.3%	6.2	0.3%
Work at Home	8.4	4.3%	93.6	5.7%	102.0	5.6%
Not Stated	10	5.2%	12.3	0.8%	22.3	1.2%
Totals	194.1	100.0%	1,635.3	100.0%	1,829.4	100.0%

The 2006 census indicates that 80% of households in the state have access to at least one car while 40% have access to two or more cars.

Parking Supply

Residential Parking

Households 1.47 million – 80% with one or more cars

City Centre Parking

Dublin City

32,000 on-street
10,000 off-street MSCP
15,000 off-street surface
8,000 residential & other
65,000 parking spaces

All local councils have some parking management scheme in operation in towns or villages. Some are very elaborate and well developed

Dublin – P&D with clamping service

Cork – discs with fines and clamping/towing

Galway – P&D with fines and clamping/towing

Others are only feeling their way

Limerick – discs with fines

Dun Laoghaire – P&D with fines

They all face the same challenges of

the need to manage scarce parking assets for the whole community rather than for small interest groups

limited and reducing supply of parking

- On-street spaces lost to environmental improvement & traffic management schemes
- Off-street spaces lost to development of surface sites

increasing car usage, congestion, parking and the associated politics.

Six Rules to Remember

1. Parking is Almost Always a Secondary Activity

It reflects the patterns and volumes of activity at the primary destination. Parking demand at shopping centres reflects the patterns of traffic in the shopping centre. Similarly in hospitals, offices, factories, theatres, schools etc. The exceptions are at a car factory or a car import storage depot

2. Proximity to Destination or Convenience is 60% to 80% of the Parking Decision

Given a choice motorists will generally choose the car park closest to their ultimate destination, regardless of price, security, physical condition etc. The actual decision on where to park is typically made before setting out on a journey and is seldom made enroute. We are creatures of habit and typically use the same parking facility repeatedly.

3. Short Stay Parkers are Distance Sensitive and Price Insensitive

The threshold for short stay parkers appears to be about 180m. Beyond this distance they prefer to drive to another location or tour around waiting for a closer space to become vacant. They will not object to paying premium parking charges to park closer.

4. Long Stay Commuters are Price Sensitive and Distance Insensitive

Motorists who have to park 5 days each week for 48 weeks each year can save significant money by walking longer distances and they do this all the time when offered a choice.

5. There is no such thing as FREE parking.

There are many costs involved in providing parking

- site acquisition/development potential
- site development – surface, fencing, drainage
- car park marking, signage, barriers
- lighting, security, CCTV
- cleaning, maintenance
- staffing, policing, monitoring
- administration of permits, passes

- commercial rates
- insurance

Typical minimum costs excluding site acquisition are €500 pa for a surface car park and €1,000 pa for a multi-storey car park.

6. Motorists typically prefer surface car parks to all other types and prefer multi-storey to underground car parks.

The typical un-enclosed surface car park offers a greater sense of personal security than purpose built facilities and customers value this.

Case Study

Parking Management at a Major City Centre Acute Hospital

1. Supply of Parking

The number of spaces available is limited. Much of the green space around the campus has been hard-topped to provide parking but open space is valued for its amenity value to patients and also as sites for new hospital premises.

2. Demand for Parking

Demand for parking at a busy hospital is a reflection of the patterns of staff, patient, visitor and other traffic to/from the campus.

2.1 Staff

Between full time, part time and contract staff there could be 7,000 staff employed at a 800/900 bed acute hospital.

Nurses (3,000) – working 12 to 12 shifts 24/7 but lower numbers at weekends

Medical staff (800)

- A&E = 24/7
- clinics 9 to 3 Monday to Friday
- surgery – 8 to 4 Monday to Friday
- consultants may require dedicated parking

Administrative staff (1,000) – 9 to 5 Monday to Friday

Support staff (1,000) – catering, laboratory, ward assistants

Technical and maintenance staff (800)

2.2 Patients

The numbers of patients using an acute hospital could exceed 600,000 pa including

In patients (50,000) – typically dropped of and picked up – low parking demand

Out patients (350/400,000) – typically attending morning clinics staying for 2 to 3 hours – high parking demand

Day patients (25/35,000) - typically dropped of and picked up – low parking demand

Casualty (150/200,000) – 24/7 moderate parking demand

Large hospitals cater for patients sent by ambulance from other smaller hospitals for specialist consultations, therapies, tests etc. In many cases the ambulance waits for the patients and is parked for several hours.

2.3 Visitors

There could be +750,000 pa visits to inpatients in an 800-bed hospital. Most visitors are family and friends of in-patients. They visit in the early afternoon and again in the early evenings and can represent 3 to 5 visits per bed per day. This can be higher in a children's wards or maternity wards and significantly lower in psych and geriatric wards.

Visitors have a high car dependency and high parking demand but for short stays - 1 to 2 hour periods usually. Visitors to patients who are terminally ill or in ICU wards or children's wards can require 24/7 parking.

Hospitals have all the normal visitor traffic of any large institution – auditors, salesmen, service engineers, design teams, bankers, staff from other hospitals or public service agencies or Government departments. Most of these use cars and require parking.

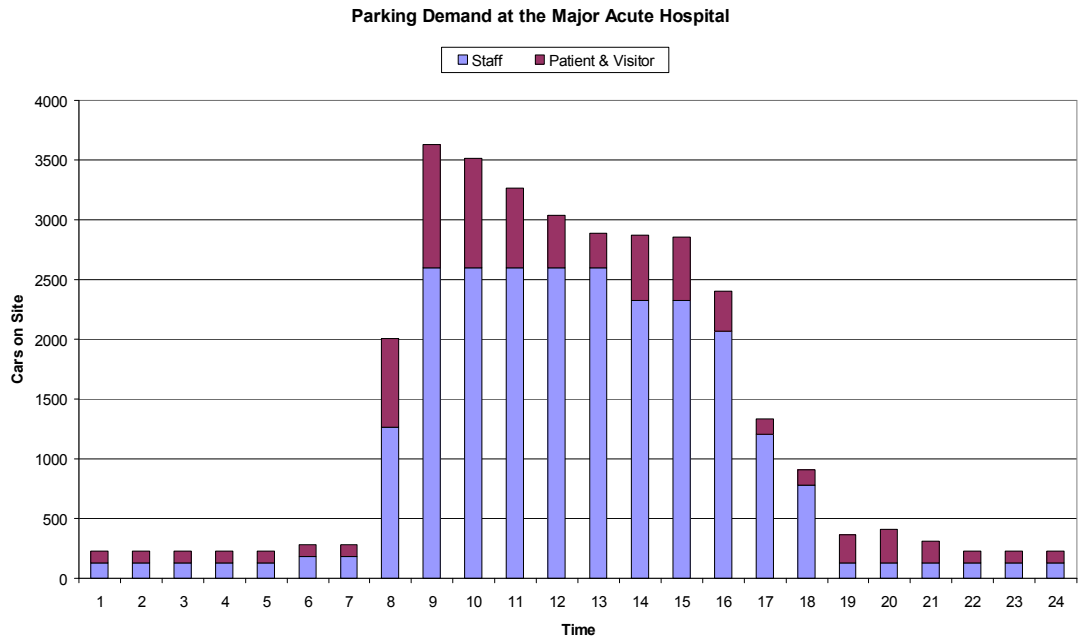
2.4 Training and Education

Large hospitals are typically primary training centres for trainee nurses and medical students. They are also used for continuing professional courses for qualified practitioners. These groups can arrive in large numbers and many of them travel by car.

2.5 Funerals & Removals

The death of a patient leads to spikes in traffic and parking demand especially for removals.

The following graph illustrates the impact of the various patterns of demand for parking at such a hospital.



General Discussion and Comments

Car ownership and usage is expected to increase by 5% pa for the foreseeable future. How will this impact on the hospital and what measures can management consider to adapt to this changing situation?

1. Expected Impact of Increased Car Usage

Increasing car ownership and usage is expected to impact all areas of parking demand across the hospital.

Staff: car ownership and usage is already high amongst the medical, professional, administrative and technical members of staff. Younger nurses, students and support staff are all expected to display increased car ownership ratios and with it increased demand for parking at the hospital.

Patients: car usage amongst patients is modest but likely to increase particularly in A&E and clinics.

Visitors: car usage is already high and expected to increase.

A 5% pa increase in demand for parking would result in a requirement for an additional 1,600 staff spaces and 600 additional patient and visitor parking spaces over a 10 year period. That is 12 to 15 acres of surface car parking on a site already over-congested with buildings and car parks.

Options

A. Do Nothing?

B. Predict and Provide?

C. Manage Rationally?

A. Do Nothing?

Doing nothing is the typical response but is not a realistic alternative as it only postpones the inevitable hard decisions.

B. Predict and Provide

This is the approach being adopted by many public hospitals in so far as staff parking is concerned because they have come to recognise that hospital staff are in short supply and in order to attract new staff and retain existing staff that parking availability is a key factor in the decision process.

The only realistic option on a congested site is to provide a multi-storey car park and perhaps to insist that all new buildings include underground parking facilities. The capital cost of a MSCP is currently €15,000 per space so a 1,000-space car park requires €15 million. The annual operating costs of such a scheme will be €750 to €1250 per space. Any hospital with €15 million of capital available and €1m pa available to cover operating expenses is unlikely to have staff parking at the top of its priority list for such funds.

Any proposal for a new MSCP will require planning permission including a TIA.

Visitor and Patient parking is being rationed through the price mechanism at many hospitals and this approach is likely to become universal before too long.

C. Manage Rationally

Demand Management

To introduce effective demand management at a hospital such as the one described above requires a programme targeted at reducing, displacing and re-organising staff travel to work arrangements. To do this a detailed understanding of **the patterns of activity at the hospital** have to be examined closely and the **associated travel and parking patterns** of staff, patients and visitors have to be established. Any schemes must meet strict performance criteria including ensuring that staff get to work on time and that key staff are retained.

Is car sharing or car pooling an option for some staff working similar shift patterns? Can special bus or coach services be provided to encourage staff to leave their cars at home or at secure collection points adjacent to appropriate reliable public transport services – a **multi-modal transport strategy**?

Pricing

Is charging for staff parking an option in the way that visitor and patient parking (**short stay and price insensitive parkers**) is now commonly charged for? Given that **long stay commuter parkers tend to be price sensitive** this could have a direct impact on demand? Would they change jobs? Could any proceeds be ring-fenced to subsidise a **mobility plan**?

Trip Reduction

Could non-essential trips to the hospital be reduced by better out-reach programmes using district nurses and GPs? Could **modern technology** be deployed to permit specialists to assess patients files, X-rays etc remotely and thereby reduce trip generation? Can specialist clinics be organised off-campus at smaller hospitals to reduce the number of trips to the hospital?

Spike Reductions

Can old practices of giving large numbers of patients the same appointment time be changed to ensure that patients arrive in a timely manner but spread across the clinic time instead of all at the start of the day? Can the proliferation of mobile phones be used to confirm that patients will or will not be attending on the prescribed day and so reduce the impact of no-shows?

There are no easy answers particularly in well established complex organisations such as major acute hospitals.

