



Combined Traffic Impact of Current and Proposed Housing Developments Within the North Petherton / Huntworth Corridor

This is a live technical evidence document and will be updated as new Transport Assessments, modelling data, traffic counts or planning information become available

Abstract

This report presents a comprehensive technical assessment of cumulative traffic impacts associated with existing and proposed residential developments along the A38 North Petherton – Huntworth corridor. The study considers both individual and combined effects on network performance, highway safety, and policy compliance, in accordance with the National Planning Policy Framework (NPPF), the Sedgemoor Local Plan (SLP), and Somerset Local Transport Plan 4 (LTP4).

The assessment reflects a total development quantum of **2,730 dwellings**. Findings indicate material capacity constraints, increased congestion potential, and elevated safety and air-quality sensitivities along key sections of the corridor. These outcomes highlight the importance of coordinated transport planning and strategic infrastructure intervention to ensure long-term policy compliance and sustainable network operation.

Executive Summary

This cumulative traffic assessment confirms that the current and planned residential development proposals — totaling 2,730 dwellings — would generate a severe, non-mitigatable impact on the A38 corridor, the principal link between North Petherton and M5 Junction 24.

Current Applications (1,330 Dwellings)

Forecast modelling indicates a 48.28% increase in daily traffic volumes relative to the updated DfT 2021 baseline data (16,530 vehicles). This contravenes Sedgemoor Local Plan Policy D13, which requires development to minimise adverse traffic impacts. Within one to five years of occupation, the corridor is projected to experience routine peak-hour congestion and network stress.

Cumulative Scenario (2,730 Dwellings)

When combined with future allocations, daily traffic flows are expected to increase by approximately 99.09% relative to the updated DfT 2021 baseline data (16,530 vehicles). This exceeds the NPPF Paragraph 116 “severe” threshold, providing a clear technical basis for identifying a significant cumulative transport impact if unmitigated.

Safety and Health Implications

The projected increase in vehicle movements conflicts with Somerset LTP4’s Vision Zero commitment, exacerbating existing high-risk conditions along the A38 and worsening local air quality. Persistent queuing and slow-moving traffic are expected to elevate exposure to NO_x and PM_{2.5}, posing long-term public-health risks.

Policy and Mitigation Context

Taken together, these findings indicate that the cumulative development scale cannot be accommodated within the existing highway network without strategic intervention. While localised junction optimisation may marginally improve efficiency, meaningful mitigation would require corridor-wide infrastructure upgrades. Continued monitoring and phased delivery aligned to demonstrable transport improvements are recommended to ensure future policy compliance.

Contents

Abstract	1
Executive Summary	2
Part 1 – Impact from Current Applications (Updated 1,330 Dwellings)	4
Part 2 – Cumulative Scenario (Updated 2,730 Dwellings)	7
Part 3 – Policy, Safety & Health Analysis	8
Part 4 – Key Findings & Recommendations	10
Appendix U (Update) — Applicant TRICS Consistency Review	12
Appendix T (Update) — DfT TAG Screening Appraisal	14
Revisions / Updates	16

Part 1 – Impact from Current Applications (Updated 1,330 Dwellings)

Overview

This section analyses eight live planning applications within the North Petherton study area, representing a combined total of 1,330 residential units. The assessment quantifies traffic generation, identifies network implications, and evaluates compliance with adopted transport policies.

Application Summary

Application Name	Application No.	Dwellings (Units)
Park Lane	37/25/00044	64
Gateway (Phase 1)	37/25/00055	15
Gateway (Phase 2)	37/25/00042	346
Vistry Gateway	37/22/00126	150
Stafflands Farm	37/25/00023	190
Daws Lane	37/25/00018	175
Dancing Hill	37/25/00088	140
Shovel Lane	TBC	250
Total	—	1,330 units

Traffic Generation and Baseline Data

Calculation Parameter	Detail	Result
Baseline Traffic Data Type	12-hour (07:00–18:00) two-way ATC count (May 2021) *	16,530 vehicles
New Daily Trips	1,330 units × 6.0 trips/unit/day	7,980 trips/day
% Increase on Baseline	$7,980 \div 16,530 \times 100$	48.28 % increase

*Baseline increased from 14694 to include post 2021 developments of 235 Dwellings of major status

Trip Rate Justification and Sensitivity Context:

The main assessment adopts a trip-generation rate of 6.0 two-way trips per dwelling per 12-hour day, consistent with TRICS residential averages for small towns and semi-rural locations with moderate accessibility. This reflects typical car-ownership levels and commuting patterns within North Petherton.

To confirm robustness, a sensitivity test was applied using 7.2 trips per dwelling (equivalent to 0.6 two-way trips per hour), representing a higher-intensity scenario sometimes applied in national or urban contexts. The outcome indicates that while numerical uplifts increase proportionally, the overall policy interpretation and impact classification remain unchanged.

Sensitivity Note: Applying 7.2 trips/unit/day yields 9,576 trips/day and a 57.93% increase on the same baseline; this does not materially alter the interpretation of network stress or policy context.

Individual Application Traffic Contributions (12-hr day; 6 trips/dwelling; baseline 16,530)

Application	Units	New Trips/day	% Total New Trips	% Increase on Baseline
Park Lane	64	384	4.81%	2.32%
Gateway Phase 1	15	90	1.13%	0.54%
Gateway Phase 2	346	2,076	26.02%	12.56%
Stafflands Farm	190	1,140	14.29%	6.90%
Daws Lane	175	1,050	13.16%	6.35%
Shovel Lane	250	1,500	18.80%	9.07%
Vistry Gateway	150	900	11.28%	5.44%
Dancing Hill	140	840	10.53%	5.08%
TOTAL	1,330	7,980	100%	+48.28% overall

Policy and Guidance Position (1,330 Dwellings)

Although this scenario alone may not reach the formal NPPF “severe” threshold, it demonstrates inconsistency with local transport-policy objectives and materially worsens network stress.

Policy / Guidance	Reference	Relevance
Sedgemoor Local Plan (SLP)	Policy D13 – Sustainable Transport and Movement	A ~48 % traffic increase fails to minimise adverse impacts, increasing congestion, air-quality pressures and safety risk.
Sedgemoor Local Plan (SLP)	Policy D14 – Managing Transport Impacts	Anticipated congestion at M5 J24 compromises safe and efficient SRN operation.
Somerset LTP4	Vision and Objectives	Conflicts with Vision Zero and sustainable-travel principles.

Time-Based Network Performance Projections (1,330 Dwellings)

Timeframe	Projected Impact on A38 / SRN Network	Key Policy Conflict
1–5 Years	Frequent network stress; recurrent peak-period congestion; M5 J24 approaching capacity.	SLP Policy D14 – Network efficiency undermined.
10–15 Years	Persistent capacity deficit; traffic diversion to unsuitable roads; elevated collision risk.	SLP Policy D13 – Failure to minimise adverse impacts.
20 + Years	Long-term congestion and progressive air-quality deterioration.	NPPF Core Principles – Unbalanced transport strategy.

Part 2 – Cumulative Scenario (Updated 2,730 Dwellings)

Overview

This cumulative scenario combines the eight current planning applications (1,330 dwellings) with the proposed project of approximately 1,400 dwellings at Walford Cross, producing a total of 2,730 residential units.

The assessment models overall trip generation, cumulative network stress, and long-term policy compliance.

Traffic Generation and Baseline Comparison

Calculation Parameter	Formula / Data Used	Result
Baseline Traffic	12-hour (07:00–18:00) two-way ATC count (May 2021) *	16 530 vehicles
Total New Daily Trips	$2,730 \times 6.0 \text{ trips/unit/day}$	16,380 trips/day
% Increase on Baseline	$(16,380 \div 16,530) \times 100$	99.09 % increase

**Baseline increased from 14694 to include post 2021 developments of 235 Dwellings of major status*

Sensitivity Note: Using a 7.2-trip rate produces 19,656 trips/day (+118.91%), confirming that the impact remains within the NPPF §116 “severe” classification. The use of 6.0 trips/dwelling provides a representative mid-range scenario aligned with TRICS data, while the 7.2-trip test provides a robust upper-bound sensitivity check.

Time-Based Network Performance Projections

Timeframe	Projected Impact on A38 / SRN Network	Policy and Compliance Implications
1–5 Years	Systemic capacity failure; chronic gridlock along A38/A361; M5 J24 breakdown; restricted emergency access.	NPPF §116 – Severe impact threshold exceeded; SLP D14 – Strategic network compromised.
10–15 Years	Prolonged congestion; degraded air quality (NO_x , $\text{PM}_{2.5}$); unsafe active-travel conditions.	SLP D13 – Cannot minimise adverse impacts; Somerset LTP4 – Vision Zero conflict.
20 + Years	Persistent corridor congestion; economic constraints; requirement for major infrastructure (bypass or junction upgrade).	NPPF Core Principles – Unsustainable transport assumptions.

Interpretation and Severity Assessment

The near-doubling of traffic represents a materially severe impact under NPPF §116.

Expected effects include:

- Network-wide congestion and delay
- Operational failure at M5 J24
- Increased collision risk
- Worsening air quality and public-health harm

No realistic mitigation package exists that would maintain network performance or policy compliance at this scale.

Part 3 – Policy, Safety & Health Analysis

Policy and Guidance Compliance Summary

Policy / Guidance	Reference	Compliance Position
National Planning Policy Framework (NPPF)	§ 116	Residual cumulative transport impacts meet the recognised “severe” threshold.
Sedgemoor Local Plan (SLP)	Policies D13 & D14	Traffic growth challenges objectives to minimise adverse impacts and maintain safe operation.
National Highways	SRN Sensitivity to Growth Principles	Forecast traffic uplift exceeds typical strategic-network growth acceptance bands without major mitigation.
Somerset LTP4	Vision & Objectives	Growth reduces scope for sustainable-travel and safety improvement programmes.

Detailed Impacts on Health, Travel, and the Strategic Road Network (SRN)

Public Health Implications:

Projected long-term queuing within North Petherton’s residential corridor will increase exposure to airborne pollutants (NO_x and PM_{2.5}). This condition constitutes a chronic public-health hazard, directly undermining the social and environmental pillars of sustainability defined by the NPPF.

Impact on Travel and Network Efficiency:

The A38 serves as a critical link in Somerset’s **Strategic Road Network**, connecting regional traffic to the M5. Functional failure of this corridor would have cascading effects on both local and national movement, affecting logistics, commuter traffic, and emergency access. Diversion of vehicles onto unsuitable local roads is expected to increase accident exposure and reduce residential amenity.

Accident Data and Safety Context

High-Risk Corridor:

The A38 already exhibits an above-average accident frequency, with certain sections recording incident rates exceeding twice the national mean.

Date	Location	Incident Description	Injuries / Outcome
04 August 2024	A38 Taunton Road, Bridgwater (between Huntworth Business Park Rbt and Showground Rd / Stockmoor Dr Rbt)	Serious collision between motorcycle and car.	Fatal – motorcyclist died at scene; road closed for investigation.
04 October 2024	Walford Cross (junction with A361)	Tractor–car collision.	Serious injuries ; air ambulance deployed; full road closure.
13 December 2019	A38 North of Huntworth Roundabout, Bridgwater	Three-vehicle crash.	Non-fatal; caused significant delays.
17 November 2019	A38 at Thurloxtton (between Walford Cross and Moon Lane)	Motorcycle–car collision.	Fatal – motorcyclist sustained fatal injuries; road closed for investigation.

Speed Data Summary (Pegasus Group / Daws Lane Application)

Speed Range (mph)	7-Day Average Flow	% of Total Vehicles
0–30 mph	2,440	23 %
30–70 mph	9,249	87 %

Department for Transport research indicates that pedestrian fatality risk rises from ~20% at 30 mph to over 80% at 50 mph. The above data demonstrates a substantial proportion of vehicles travelling at speeds that materially increase the severity of collision outcomes.

Existing Network Conditions

The A38 / M5 Junction 24 corridor experiences recurrent congestion even under baseline conditions. National Highways and RAC monitoring regularly report “severe delays” during peak and seasonal traffic periods. These findings confirm that the network currently operates near or beyond its design capacity, rendering it highly sensitive to additional growth.

Part 4 – Key Findings & Recommendations

Key Findings

The cumulative development quantum (2,730 dwellings) results in an approximate 99.09% increase in daily traffic on the A38/A361 corridor versus the revised 2021 baseline.

Key observations:

- Increased congestion on the A38 and M5 J24.
- Forecast demand beyond operational capacity at multiple junctions.
- Limited potential for safety and mode-shift programmes.
- Increased exposure to air-quality sensitivity zones.

Network Performance Outlook

Proportional modelling indicates:

- Recurring peak-period delays during early occupation.
- Consolidation of queuing in later phases.
- Extended journey-time variability for local and strategic movements.

Policy Alignment Position

The forecast demand presents challenges for:

- NPPF residual cumulative impact tests.
- SLP D13 & D14 transport policies.
- SRN growth-sensitivity guidance.
- Local authority mode-shift and Vision Zero objectives.

Mitigation Context

- Local junction works alone will not offset demand pressures.
 - Strategic-scale intervention (e.g., junction reconfiguration or bypass) likely required.
 - Funding and timing must be defined before counting as deliverable mitigation.
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Conclusion and Recommendations

The cumulative scenario indicates traffic demand exceeding the capacity of the A38 corridor and M5 J24.

This provides a technical basis for identifying cumulative operational constraints and the need for strategic infrastructure planning.

Recommendations:

1. Seek strategic-transport planning input on corridor-wide solutions.
 2. Phase development to match demonstrable capacity improvements.
 3. Implement ongoing corridor performance monitoring to inform future planning decisions.
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Appendix U (Update) — Applicant TRICS Consistency Review

U1. Purpose

This appendix reviews **applicant-submitted Transport Assessments** to test whether the **trip generation assumptions** used in the Cumulative Traffic Report (**June 2026 Ver 1.5**) are reasonable when compared against **locally submitted TRICS evidence**.

The review uses only the following applications:

- Park Lane (37/25/00044) — Miles White
- Daws Lane (37/25/00018) — Pegasus
- Bridgwater Gateway Phase 2 (37/22/00126) — Peter Evans Partnership (using National Highways benchmark rates)

No independent TRICS analysis has been undertaken.

U2. Applicant Peak-Hour Trip Rates

Site	Dwellings	AM Peak two-way (veh/dw/hr)	PM Peak two-way (veh/dw/hr)
Park Lane	64	0.503	0.510
Daws Lane	175	0.523	0.489
Gateway Phase 2	150	0.560	0.585

U3. Methodological context

Park Lane (Miles White)

Recent TRICS surveys (2022–2024), small sites (40–100 dwellings), servicing vehicles excluded and inclusion of some edge-of-centre locations. This produces a **lower-bound** benchmark.

Daws Lane (Pegasus)

Large TRICS sample (2014–2024), edge-of-town and suburban car-based locations. The applicant explicitly describes this as a “**robust / maximum trip generation**” scenario.

Gateway Phase 2 (PEP)

Uses **National Highways-required benchmark trip rates** derived from earlier strategic TRICS surveys. These are stated to be higher than more recent TRICS averages and therefore represent a **strategic upper bound**.

U4. Locally evidenced envelope

Across the three applicant Transport Assessments a consistent envelope emerges:

- **AM Peak: ~0.50 – 0.56 veh/dw/hr**
- **PM Peak: ~0.49 – 0.59 veh/dw/hr**

This envelope is entirely derived from **applicant-submitted evidence**.

U5. Sites Not Yet Incorporated into Appendix U

Appendix U reviews only those Transport Assessments currently examined as part of this report, namely Park Lane, Daws Lane and Bridgwater Gateway Phase 2.

At the time of publication, additional transport evidence may exist for other sites within the cumulative assessment area; however, these documents have not yet been reviewed as part of this appendix and are therefore not included within the locally evidenced trip-rate envelope established in Section U4.

For cumulative assessment purposes, where site-specific trip-generation data has not yet been reviewed, it is reasonable to apply a proxy trip rate based on the locally evidenced envelope:

- Central proxy: mean of Park Lane, Daws Lane and Gateway Phase 2
- Robust proxy: upper bound (National Highways benchmark)

This approach is consistent with DfT / TAG practice when site-specific data is incomplete or has not yet been incorporated into the cumulative assessment.

U6. Implication for the Cumulative Traffic Report

The Cumulative Traffic Report uses **6.0 and 7.2 daily trips per dwelling**.

When translated into peak-hour equivalents, these fall **within or below** the locally evidenced TRICS envelope above.

Accordingly, the cumulative modelling assumptions are **reasonable and not optimistic** when tested against applicant Transport Assessments.

Appendix T (Update) — DfT TAG Screening Appraisal

T1. Purpose

This appendix applies **DfT TAG (WebTAG) screening** to the **TRICS-validated demand** established in Appendix U.

Two cases are considered:

- **Central case:** mean of Park Lane, Daws Lane and Gateway Phase 2
- **Robust case:** National Highways upper bound (Gateway Phase 2)

T2. Peak-hour demand used

From Appendix U:

- **Central peak rate:** ~0.53 veh/dw/hr
- **Robust peak rate:** ~0.58 veh/dw/hr

For **2,730 dwellings**:

Case	AM peak two-way flow
Central	~1,447 vehicles/hour
Robust (NH)	~1,583 vehicles/hour

These flows would feed directly into the **A38 / Huntworth Roundabout / M5 J24 system**.

T3. TAG screening interpretation

Under WebTAG Unit A1.3:

- Flows of this scale on a corridor already operating near capacity result in:
 - **Severe delay**
 - **Queue propagation and reliability failure**
 - **Network instability at M5 Junction 24**

These impacts trigger **TAG “large adverse” user impacts**.

T4. Economic, safety and environmental implications

Using DfT standard values of time and accident valuation, flows of this magnitude produce:

- **Multi-million-pound annual journey-time losses**
- **Increased collision risk** on the A38 and SRN approaches

- **Higher NO₂ and PM_{2.5} exposure** from persistent queuing

These represent **material adverse impacts** under TAG Units A1 (user impacts), A3 (environment) and A4.1 (social/safety).

T5. TAG conclusion

Using **applicant-validated TRICS demand (Appendix U)**, the cumulative development scenario results in:

Severe residual transport impacts under DfT TAG.

This supports the NPPF §116 conclusion in the main report that the cumulative scheme is not capable of being accommodated without strategic intervention.

Revisions / Updates

Version	Date	Revision Details
1.3	Nov 2025	Updated baseline traffic to reflect post-2021 major residential developments (Royal View, Chaucer's Meadow, Batts Meadow and Carrots Farm). Trip generation values revised to reflect the location and settlement characteristics of assessed developments in accordance with TRICS guidance.
1.4	Jan 2026	Added Appendix U (Applicant TRICS Consistency Review) and Appendix T (DfT TAG Screening Appraisal).
1.5	June 2026	Updated to include the proposed Shovel Lane residential development (250 dwellings) within the cumulative assessment area. Current application totals revised from 1,080 to 1,330 dwellings and cumulative development totals revised from 2,480 to 2,730 dwellings. Updated all associated trip-generation calculations, percentage traffic increases, cumulative scenario forecasts, DfT TAG screening outputs, summary tables and cumulative impact assessments. Revised Appendix U to clarify the status and review coverage of available Transport Assessments and supporting transport evidence. Updated Executive Summary, Key Findings and associated figures to maintain consistency throughout the report.

Disclaimer (Errors & Omissions)

This assessment is based on information available at the time of preparation. It is provided for technical and planning purposes only and does not constitute a legal document or precedent. While every effort has been made to ensure accuracy, no liability is accepted for any errors, omissions, or reliance placed on the contents beyond its intended scope.

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