

Connected City Infrastructure

This Project Group Charter establishes the scope, intellectual property and copyright terms used to develop the materials identified in this Project Group (PG). Only Participants that execute this Working Group Charter will be bound by its terms and be permitted to participate in this Project Group and shall be considered “Contributors” in the Project Group as defined in the Telecom Infra Project Organizational Documents (<https://telecominfraproject.com/organizational-documents/>).

TIP Board of Directors Approval Date: September 2, 2020

1. PROJECT GROUP NAME, SEGMENT, AND TYPE

NAME: Connected City Infrastructure

SEGMENT(S): Urban

TYPE: Solution Group

2. PURPOSE

Small cells by multiple operators on shared street assets is not a novel idea. Over the last few years, there have been many trials and studies conducted to explore this concept, but very few progressed to scaled adoption due to 1) coverage and capacity needs met via macro cell optimization and 2) high capital and operational costs. With 4G and 5G-NR (especially in FR2) densification, street level sites are not optional for many operators. Hence, there is a heightened need to investigate the technical and business aspects of shared street level deployments.

In this PG, we plan to develop a configuration with cost-efficient new and retro-fitting street asset solutions and alternate backhaul technologies.

Furthermore, city councils in UK & Europe, abiding to policies set in Article 57 of the European Electronics Communications Code (EECC), are dependent upon Telcos and Infrastructure Providers to increase the level of connectivity at macro and street level. This is to unlock near term and longer term digital strategies including:

- i. Covid-19 solutions including social distancing, crowd analytics and management
- ii. “Connecting the Unconnected” and offering a platform for e-council, telehealth, e-retail, and e-mobility services
- iii. Building business cases for scaling connectivity, fiber, and electricity into locations where there is demand for services

The challenges for city councils are threefold:

- i. Breaking commercial deadlock between municipalities, Telcos, and infrastructure providers in provision and operation of small cell solutions at scale in target city locations
- ii. Expanding the possible supplier landscape to drive future tenders
- iii. Addressing cost of recovery on provision of city assets

3. PROJECT GROUP SCOPE

The PG is focused on urban connectivity solutions, specifically:

- i. The definition and validation of new construction and retro-fitted modular street assets with LTE / 5G Small Cells and Public Wi-Fi E2E architectures. The PG members will deploy these street assets, with modular assembly, in a field trial supporting interchangeable backhaul and access technologies.
- ii. The creation of an anonymized business case for provision and operation of operator service based on different backhaul & transmission services (i.e. fiber, mmWave, microwave) - focusing on business driver constructs required to drive scalable solution. This will also be complemented with deployment and operational guidelines.

The vision is to be able to share and promote the commercial and technical blueprint outputs with wider audiences including other City Authorities, Operators, Infrastructure Providers, Governments and Investors to deploy & scale Connected City Infrastructure.

Out of scope

- Development of Interface Specifications or Component Specifications
- Development of Hardware Equipment (incl. Wi-Fi and small cells)
- Development of Software
- OpenRAN-based Small Cells (due to unavailability within PG execution timeline)

4. DELIVERABLE LICENSING POLICIES

Contributions to Deliverables and any license to use the Deliverable upon its finalization are governed by TIP's Organizational Documents which may be accessed at <https://telecominfraproject.com/organizational-documents/>. The IPR policies and agreements referenced below are TIP Organizational Documents unless otherwise specified and attached to this Charter.

	Deliverable	IPR Treatment	Approval Procedures
1	Use Case Definition Document	Document IPR Policy	Version(s) by consensus of the SG. Final approval by Technical Committee
2	Technical & Business Requirements Document	Document IPR Policy	Version(s) by consensus of the SG. Final approval by Technical Committee
3	Architecture Solution Design Document (taking into consideration national policy in relation to EEC Article 57)	Document IPR Policy	Version(s) by consensus of the SG. Final approval by Technical Committee
4	Test Reports from Field	Document IPR Policy	Version(s) by consensus of the SG. Final approval by Technical Committee
5	Deployment and Operational Guidelines	Document IPR Policy	Version(s) by consensus of the SG. Final approval by Technical Committee
6	Project Exit Report	Document IPR Policy	Version(s) by consensus of the SG. Final approval by Technical Committee
7	Solution Business Case	Document IPR Policy	Version(s) by consensus of the SG. Final approval by Technical Committee

Schedule and milestones

Phase	Milestones	Deliverable Criteria	Timeline
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Phase 0: Requirements Gathering, Equipment Preparation, and Site Selection	<ul style="list-style-type: none"> Mechanical integration design Equipment availability Mounting equipment built 		Q3 2020
	<ul style="list-style-type: none"> Site selected and approved 		Q3 2020
Phase 1: Permitting	<ul style="list-style-type: none"> Equipment ready for installation Permits and remediation complete 	Test Execution and Results Report	Q3 2020
Phase 2: Installation	<ul style="list-style-type: none"> Mount and equipment pole installation (<i>daily installation reports to SG</i>) 	Use Case Definition (see Deliverable #1) Technical and Business Requirements Document (see Deliverable #2) Architecture Solution Design Document (see Deliverable #3)	Q4 2020
Phase 3: Operation	<ul style="list-style-type: none"> Network operations and monitoring (<i>incl. weekly status reports of all sites until stable network operation is achieved, then monthly reports until SG graduation</i>) 	Test Reports from Field (see Deliverable #5)	Q4 2020 / Q1 2021
Phase 4: Handover	<ul style="list-style-type: none"> Handover to DCC 	Project Exit Report (see Deliverable #6) Solution Business Case (see Deliverable #7)	Q1 2021

5. INITIAL PROJECT CHAMPIONS

Organization	Type
Eir	MNO, ISP
Three Ireland	MNO, ISP

Vodafone (<i>early engagement</i>)	MNO
Schröder	Infra Manufacturer
Dense Air	HW Vendor
Think Smarter	Information Technology and Services

6. CHAIR AND(OR) CO-CHAIR OF PROJECT GROUP

CHAIR

- Michael Guerin, Dublin City Council

7. PROJECT GROUP MEMBERSHIP

A TIP Participant who wishes to participate in this PG must have its TIP Authorized Representative submit an application at <https://member.telecominfraproject.com/get-started>. The TIP Authorized Representative is the individual identified in the applicable Participant's General Participation Agreement.

No Participant shall be a participant of this PG until and unless TIP notifies the applicable Authorized Representative in writing that the application submitted by such Authorized Representative has been approved by TIP.

Member Expectations

The expectations for participation are detailed below

All group members

- To actively participate in group meetings
- To assign technical resources to support the needs of the group

Consumers (includes MNOs, ISPs, Infra Providers and Owners)

- Co-create with us and execute field trials
- Provide KPIs for lab and field trials
- Contribute to requirements documents
- Define GTM strategy
- Assist in discussions with municipalities to select trial locations

Producers (includes Technology Providers, OEMs / Vendors, System Integrators)

- Develop prototypes and subsequent products compliant with TIP deliverables and industry specifications
- Contribute to deployment plans

Collaboration and Cooperation

Internal (TIP)

- TIP mmWave Networks Project Group
 - This PG will reference the Integrated Street Asset specification for new and retrofit light poles
- TIP Wi-Fi Project Group
 - This PG will reference TIP Open Wi-Fi Stack and cloud management software
- Dublin and Sligo Wi-Fi Mobile Data Offload Project
 - This PG will integrate TIP Wi-Fi APs from the Wi-Fi MDO SG

Charter Update: This Charter will be updated to reflect any changes as set forth in the Project Group Charter Revision Policy which may be accessed at https://cdn.brandfolder.io/D8DI15S7/as/q7rnyo-fv487k-2j33tl/Project_Group_Charter_Revision_Policy_-_Telecom_Infra_Project.pdf.

ACCEPTANCE

Contact Name

Contact Title

Email Address

Telephone Number (Include Country Code)

Company Name

Company Address, City, State, Country, Postal Code

Company Web Page URL

Primary services or products the company provides

Signature

Date

Signed by (print name)