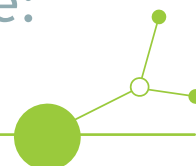


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OPTI-UP Toolkit - A Case Study in Practical Use:
Český Krumlov, Czech Republic



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1. What is the OPTI-UP Toolkit?

The OPTI-UP Toolkit is a web application that supports the early stage of public transport planning.

1.1. Overview

The application helps the city or service area decide which kind of optimisation approach may best fit its local situation. Instead of starting from a single pre-chosen solution, you describe your city, its transport system and your priorities, and the Toolkit suggests a recommended direction to work with.

1.2. How it works

It is designed to be simple to use. The whole experience is a short, guided conversation: you answer a structured questionnaire about your local context, you tell the Toolkit which planning goals matter most to you, and you finish with a recommendation you can discuss and build on. You do not need any technical background to use it.

The result is not a final transport plan. It is an initial, well-reasoned recommendation that supports discussion, helps prioritise options, and gives you a solid starting point for further technical analysis and decision-making.

Explore the OPTI-UP Toolkit: www.opti-up.net



2. Who is it for and what it helps you decide

The Toolkit is aimed at the people who think about and shape public transport in a city or region, for example:

- **City and regional staff:** planners and urbanists in a city office,
- **Operators:** public transport operators and service managers,
- **Consultants:** consultants and advisors supporting a city, and
- **Decision-makers:** policy makers who want a fact-based basis for prioritising public transport investments.

2.1. Questions it helps answer

- Which direction of change is most suitable for my city right now?
- Does my city need to improve an existing bus network, modernise its fleet, introduce a new form of service, or perhaps keep the system largely as it is?
- Which option fits my city's size, density, fleet, operating situation and budget priorities?
- What should I focus on first, and what does a comparable city in a similar situation do?

The Toolkit compares your answers against a library of expert knowledge gathered from real public transport projects in Europe, and it blends that objective view with the priorities you choose, so the recommendation is tailored to your specific city rather than to a generic template.



3. Why Český Krumlov is used as the sample city

Every city is different, so a case study is most useful when it walks through a real, well-known place. Český Krumlov was chosen as the sample city for this study because it has many of the traits that make a public transport decision genuinely interesting:

- **Small and compact:** a small, compact historic centre (roughly twelve thousand residents in an area of about twenty-two square kilometres), which sits in the lower part of the population scale,
- **Dense enough:** a city whose population is concentrated, giving it a moderate-to-high density for its size,
- **An existing service to improve:** an existing bus service with a small, mostly conventional (diesel) fleet, so it has something to optimise,
- **Challenging local conditions:** a hilly terrain and a protected historic core, which places special demands on vehicles and on how public space is organised,
- **A distinct demand profile:** a large share of demand driven by tourism and seasonal visitors, in addition to everyday commuter and school trips.

Because Český Krumlov is both familiar and non-trivial, it lets us show, step by step, exactly what a user sees on the screen and how realistic values are entered. The same procedure works for any other city; only the numbers and choices change.



4. Before you begin: a short checklist

You do not need any software to install and you do not need to be an expert. Before you open the Toolkit, it helps to have a general picture of your city's transport. Having the information below on hand will make the questionnaire quicker, but exact figures are not required wherever categories are offered.

- The approximate number of residents and the size of the area you are planning for;
- whether an organised local bus service exists today;
- a rough sense of how full the vehicles usually are and how often they run in peak hours;
- a rough sense of the fleet size, its age and how many vehicles are electric;
- a clear idea of which goals the city cares most about right now (coverage, ridership, costs, emissions, digitalisation, integration with public space).

If you do not have a precise figure, do not worry: many questions let you choose a category such as low, medium or high, and that is entirely acceptable. You can always come back and adjust your answers before the analysis is run.



5. Step-by-step walkthrough of the workflow

The whole process moves through one clear sequence. In this study each step is illustrated with the Český Krumlov example. A progress indicator at the top of the screen always shows how many required and how many optional questions you have completed, so you always know where you are.

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- whether an organised local bus service exists today;
- a rough sense of how full the vehicles usually are and how often they run in peak hours;
- a rough sense of the fleet size, its age and how many vehicles are electric;
- a clear idea of which goals the city cares most about right now (coverage, ridership, costs, emissions, digitalisation, integration with public space).

5.1. Open the Toolkit and start the questionnaire

Go to the Toolkit web address (in this deployment, toolkit.opti-up.net) in any modern web browser and open the home page.

Expand and read the short introductory panel on the top of the page, which explains that the Toolkit supports early-stage public transport planning and helps identify the optimisation approach that best fits your city. You can close this panel once you have read it.

You are then brought to the parameter collection screen. The left side shows the current question one at a time; the right side keeps a running list of everything you have already answered, so you can check your choices at any moment.

Use the back and forward arrows at the top if you want to move between questions. A progress bar shows your position.

5.2. Answer the parameter questions (with a worked example)

The questions are grouped into a few logical themes: your city and area, your current public transport system, demand and usage, the fleet and operations, and finally your priorities. For each question you will see:

- a short category label and, where useful, a one-line explanation;
- the question itself with a required or optional badge;
- a description of what is being measured and why it matters.

There are two ways to answer a numeric question, and you can use either:

- Select a category. choose a category, such as Very low, Low, Medium, Medium high or High; or
- Set an exact value. slide a bar (or use the minus and plus buttons) to set an exact value.



If you use both, the last one you change becomes your answer. For yes-no style questions you simply pick Yes or No.

Below is a realistic set of answers for Český Krumlov. It shows the kind of values a user would plausibly enter for a small historic city with an existing bus service.

Theme	Question (short form)	How it would be answered for Český Krumlov
Your city and area	Number of residents	Very low (about twelve thousand people)
	Size of the planning area	Small (about twenty-two square kilometres)
	Average population density	Low (roughly five to six hundred people per km ²)
	Is there an existing local bus service?	Yes
Current transport system	Tram or light rail present?	No
	Urban or suburban rail present?	Yes (a railway station, low use)
	Regular taxi service available?	Yes
Demand and usage	How full are vehicles usually?	Mostly empty to occasionally standing-only
	Typical weekday boardings	Low (well under five thousand a day)
Fleet and operations	Share of electric vehicles	Low (a few planned, none yet in daily use)
	Average age of non-electric vehicles	Medium (about eight years)
	Fleet size	Low (around ten vehicles)

Note: these are example values written for illustration in this case study. A real user would enter whatever best matches their own city and available data.

Two points worth highlighting for the Český Krumlov situation:

- The values tell a coherent story. Because the city is small, compact and hilly, the questions that lean on an existing network (such as fleet age and load) are naturally lower, which the Toolkit takes into account when it matches your profile against expert knowledge.
- You are not forced to fill in everything. Some questions are clearly optional. If you genuinely do not have a value, you can skip that particular question and continue; the Toolkit takes into account the missing inputs as a penalty to the confidence score of recommending a specific strategy.



5.3. Set your city goals and priorities

After the descriptive questions, the Toolkit asks how important each planning goal is to your city. Each goal is scored from zero (not a priority) to ten (very important) using a slider. These scores are your way of telling the Toolkit what the city truly cares about, independent of the objective data.

For Český Krumlov, a plausible priority profile would emphasise a few goals strongly and downplay others, for example:

Goal	Plausible score (0 to 10) and why
Increase ridership	High (8) – the city wants more residents and visitors to use the bus rather than cars
Improve integration with public space	High (8) – the historic centre benefits from bus stops and routes that fit the streetscape
Reduce emissions	High (7) – clean vehicles suit a protected, tourist-heavy centre
Increase coverage	Medium (5) – there is limited room to expand a network in a small city
Reduce operating costs	Medium (5) – the small fleet already keeps costs modest
Improve digitalisation and efficiency	Medium (5) – helpful for information and booking, not the top driver

You can leave any individual goal unset by using its skip control; the Toolkit simply treats that goal as a lower priority. The exact numbers are less important than their relative ranking, so it is fine to adjust until the order matches what the city really wants.



5.4. Set the strategy weights

Once the goals are set, the Toolkit lists the main strategy families it can recommend and asks you to weight each one. Think of a weight as your overall appetite for that type of solution, on the same zero-to-ten scale. A weight of zero means you would rather not pursue that option at all; a high weight means it is an explicitly preferred direction.

The strategy families offered are as below. Note you can only set the weights of the first three strategies, as the last two are “fallback” recommendations when public transport optimisation is not suitable yet:

Strategy family	What it generally means
Demand-responsive transport	Flexible, app- or phone-booked small vehicles that go where and when people need them
Bus electrification	Replacing or adding electric buses to the fleet and the routes they serve
Public transport network optimisation	Rerouting, re-timing or adding fixed bus lines to better match demand
Implementation of a new PT system	Introducing a new form of public transport where none suitable exists yet
No major change	Keeping the system largely as it is, making only minor adjustments

For a city like Český Krumlov, a user might give bus electrification and ridership-focused options a higher weight, give demand-responsive transport a moderate weight, and keep the implementation of an entirely new system and the no-change option at the lower end. These weights let the Toolkit respect local political and budget realities on top of the objective picture.

When all the weights are set, you confirm them and move on. The combination of your descriptive answers, your goals and your strategy weights together form the complete profile that the Toolkit will now evaluate.

5.5. Confirm and run the analysis

The parameters that you entered can be seen on the right-hand side of the Toolkit. It protects against starting the evaluation by mistake. On this part of the screen you will see a summary that all the required parameters have been collected, and a button to proceed to the evaluation.

- If anything looks wrong, go back using the navigation arrows and adjust the relevant answer; you can still change things up to this point.
- When you are satisfied, click the button to proceed. The Toolkit briefly runs its analysis. You will see a short waiting message, and then you will be taken straight to the result.

You do not need to do anything technical here; the confirmation screen simply guarantees that the profile is final before the recommendation is produced.



5.6. Read the Recommendation

The Toolkit does not end with a static report. It opens an assistant that already knows about your specific case. Its opening message summarises the analysis and points to the recommended direction for your city. You should read it as a considered starting point, not as a finished project.

In the Český Krumlov example, the recommendation is most likely to point toward improving the existing bus service in a way that matches a small, compact, hilly historic city with a young conventional fleet and a strong interest in cleaner vehicles and higher ridership. Typical elements of such a recommendation are:

- bringing electric buses into service on selected routes first, to build practical experience before a fuller fleet renewal;
- choosing low-floor or accessible vehicles that fit the historic streets;
- aligning timetables with the school and tourism peaks that dominate local demand; and
- using the early phase to gather real-world information on energy use, hill performance and charging, which informs the longer-term decision.

The recommendation deliberately explains what it means, why it was selected for your inputs, and what you should consider doing next, so the result is easy to discuss with colleagues.

5.7. Ask the assistant follow-up questions

The most powerful part of the Toolkit is that you can keep a conversation going in plain language. The assistant answers based on your city's data and the project knowledge base, so its replies stay specific to your case. A few kinds of questions work especially well:

- **Comparing options:** which of the relevant options would most improve travel times in the city centre, and why?
- **Getting practical detail:** what concrete changes to frequency or routing would make sense given the size of the network?
- **Understanding the reasoning:** why was one direction scored as less suitable than another, and which of my inputs had the strongest effect?
- **Testing a scenario:** how would the recommendation change if we could spend noticeably more on a specific goal?

You can also ask it to point you to the underlying planning documents or guidance. On the right-hand side of the assistant screen there is a resources panel with links to the relevant public planning materials, including a local plan for Český Krumlov and a comprehensive strategy for sustainable public transport, so you can always go straight to the source.

A good habit is to start broad and then drill down: first ask what is recommended and why, then ask how it would look in practice, and finally ask what evidence or documents support each point.



5.8. Turn the recommendation into next steps

Once you are comfortable with the recommendation, the practical follow-through usually includes:

- summarising the recommended direction and the reasons behind it for a short decision-making discussion;
- identifying the first, low-risk actions (for example, piloting electric buses on one or two routes) that can start quickly;
- deciding which data to refine or collect, since the quality of the recommendation improves as your inputs become more precise;
- using the assistant and the linked documents to prepare a more detailed technical analysis, and
- bringing the outcome to a qualified transport professional for validation before any concrete plan is committed to.

Remember that the Toolkit is a decision-support aid: it narrows the field of options and makes the reasoning transparent, which is exactly what is needed to have a productive discussion about the city's public transport future.



6. Understanding the result and its limits

It is worth being clear about what the Toolkit is and is not, so that it is used well.

What it is. A structured, transparent way to compare public transport optimisation options against your city's real characteristics and priorities, and to have an informed conversation about the result.

What it is not. A final transport plan, a construction or procurement document, or a substitute for professional engineering. It gives an initial recommendation intended to support discussion, prioritisation and further technical analysis.

Three practical reminders:

- **Garbage in, less useful out.** The recommendation reflects the data you entered. Better inputs lead to a sharper, more trustworthy result.
- **A helpful guide, not a judge.** The assistant is a guide grounded in the project's knowledge, not an approving authority. Treat its answers as well-informed suggestions to be checked against the cited sources.
- **Get it validated.** Because your situation is unique, always have a qualified transport engineer or urbanist review any recommendation before it is acted upon.

7. Tips for getting the best out of the Toolkit

- **Do not over-think the numbers.** Use categories freely. Where a question offers them, choosing low, medium or high is perfectly acceptable and faster than hunting for an exact number.
- **Stay consistent where it matters.** If two numbers conflict, trust the one you are most confident about and note the uncertainty for later.
- **Ranking beats precision.** The relative order of your goal scores and strategy weights matters more than their exact values, so spend a moment making sure the ranking feels right.
- **Use the pause.** You can move back and forth with the arrows before you press proceed, so use that to second-guess any answer that feels off.
- **Ask for the reasoning.** Ask the assistant why, not just what. Understanding the reasoning is what makes the result something you can defend to colleagues.
- **Follow the sources.** Keep the resources panel in view; linking back to the underlying planning documents is the fastest way to deepen any answer.



8. Frequently asked questions

Do I need any special software or an account to install?

No. The Toolkit runs in a standard web browser. You open it, answer the questions and read the result, all on the screen.

What if I do not have an exact number for a question?

Most questions let you pick a category instead. For the few that are more numeric, an approximate value or a reasonable category is fine, and you can always refine it later.

Can I change an answer after I have started?

Yes. Until you confirm and proceed to the evaluation, you can freely move back and forth and edit your answers. Once the evaluation is run, you would start a new session to change them.

What happens if I skip an optional question?

Nothing breaks. The Toolkit simply has a little less to work with for the affected part, so the recommendation may be slightly less precise. Skipped questions are shown in your answers list so you can see what was left open.

How does the Toolkit know what is relevant to my city?

It compares your profile against expert knowledge gathered from real public transport projects across Europe, and it blends that with the goals and weights you choose, so the result is tailored to your situation rather than generic.

Is the recommendation a final decision?

No. It is an initial, well-reasoned recommendation to support discussion and further technical work. A qualified professional should review it before any concrete action is taken.

Can I save or share the result?

You can read the whole conversation in the browser, use its print function to save a copy, and refer to the linked planning documents. The assistant also cites the sources behind its answers, which makes it easy to share the reasoning as well as the conclusion.

Where can I read more about the underlying methodology?

The methodological and development details of the toolkit can be found at OPTI-UP Deliverable 3.1.1 report, titled “A detailed report on the Development process of the Replicable Sustainable Public Toolkit”.



9. A simple glossary

Term	Plain-language meaning
Public transport (PT)	Shared, scheduled services such as buses that people can use in place of a private car
Demand-responsive transport	Flexible small-vehicle service that is booked in advance and goes where there is real demand
Headway	The time between two consecutive departures of a service; a smaller headway means more frequent service
Load factor	How full the vehicles usually are, from mostly empty to often hard to find a seat
Ridership	The number of people who use the service
Coverage	How much of the city, and how many people, are within easy reach of a service
Strategy weights	Your way of saying which kind of solution you want to favour more or less
Recommendation	The Toolkit's initial, tailored suggestion of the most suitable direction to pursue



10. Summary

The OPTI-UP Toolkit turns a complex public transport decision into a short, guided conversation. Using Český Krumlov as a worked example, this study has shown a clear step-by-step path:

- Open the Toolkit and start the questionnaire.
- Describe your city and its transport, using categories or values.
- Set your goals and your appetite for each strategy family.
- Confirm the profile and run the analysis.
- Read the tailored recommendation and talk it through with the assistant.
- Turn the recommendation into concrete, reviewable next steps.

The strength of the Toolkit is that it is transparent and tailored: it compares your city's real characteristics with expert knowledge from comparable European projects, and it lets you shape the outcome with your own priorities. The result is not a finished plan, but a well-reasoned starting point that makes it easier to discuss, prioritise and ultimately decide what is best for the city's public transport future.

The Toolkit supports early-stage public transport planning by helping you identify which optimisation approach may best fit your city or service area. It is an initial recommendation intended to support discussion, prioritisation and further technical analysis.