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CURACAO

Coordination of Urban Road User Charging Organisational Issues

Coordination Action

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1.6.2 Sustainable Surface Transport

Deliverable D3: Case Study Results Report

Appendix

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Editors

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CURACAO Project Office

Transport & Travel Research Ltd

Arundel House

6 Portland Square

Bristol BS2 8RR

UNITED KINGDOM

Tel: +44 (0) 117 907 6520

Fax: +44 (0) 117 907 4146

Email: curacao@ttr-ltd.com

Web: www.ttr-ltd.com

Introduction

The methodology for carrying out the Impact Assessment of the transport data collected has changed during the course of the project. In this introduction the two different approaches and the reasons for the change are described.

The original methodology, as presented in the CURACAO Inception Report, was to establish a set of baseline indicators and collect data on these indicators from six 'core' cities (Bristol, The Hague, London, Oslo, Rome and Stockholm). The list of indicators and this methodology were presented to the CURACAO User Group in London in March 2007 and approved as an approach.

During 2007 and 2008, the project partners collected the indicator data, and an initial draft of the Impact Assessment was circulated to the Steering Committee meeting in Berlin in September 2008. The outcome of discussions at the meeting was that the data collected was insufficient as a basis for drawing detailed conclusions about the impacts of urban road user charging in those cities, and in particular for a 'compare and contrast' exercise between the cities. For instance, out of the six case studies for which more detailed data had been collected, only four had actually implemented schemes, and there were difficulties in obtaining certain categories of data from Rome and Oslo. In addition, data was becoming available from cities outside of the original six core cities with implemented schemes, such as Milan, which was also of interest for analysis.

Therefore at the Berlin Steering Committee meeting a revised approach was agreed that would better meet the requirements of the Impact Assessment and the Comparative Analysis. The revised methodology would collate available data from the 17 case studies into a series of tables, which as far as possible reflected the original categories of the indicator framework.

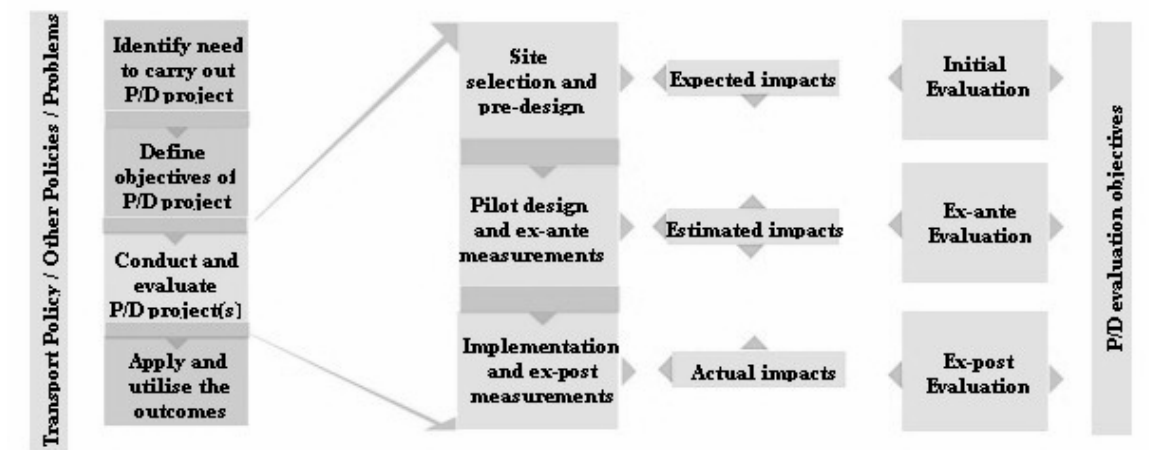
Therefore the original methodology and data collated for the six core cities is presented here as an Appendix to D3 Case Study Results.



ANNEX I – CURACAO Indicators

CURACAO tried to adopt the MAESTRO approach already successfully employed by CUPID and PROGRESS.

Figure 1 – MAESTRO Approach



Within MAESTRO approach the evaluation, which is an ongoing process, is conducted in three consequential stages:

- I. *Initial evaluation*, which identifies the expected impacts and their respective indicators, leads a preliminary evaluation of the project based on existing knowledge and expert opinions, and chooses evaluation method(s) for the three evaluation phases. The key activity for the cities at this stage is to identify both the expected impacts for the project and the factors which indicate that the impacts have been realised. The impacts should correlate with the objectives of the project, and should lead to the identification of the likely indicators for their detection. This type of evaluation is largely qualitative in terms of expected results.
- II. *Ex-ante evaluation*, which estimates the likely impacts of the URUC scheme. The evaluation at this stage provides a further forecast of the expected impacts of the project against a do-nothing case. As the design stage has helped refine the scheme specification, it should now be possible to undertake a more detailed evaluation of the expected impacts of the scheme and to include an increased number of impact areas in the evaluation.
- III. *Ex-post evaluation*, which analyses the actual impacts of the project and considers whether the project has met its objectives. The final analysis of the project will aid the comparison of data relating to project impacts based on observation with the do-nothing baseline data. In addition to this quantified assessment, a final round of qualitative interviews with stakeholders should be undertaken to find out whether they feel that the scheme has achieved its objectives.

For obvious reasons (the schemes are already operating or being piloted), CURACAO aimed at limiting its intervention to the ex-ante (only when applicable) and ex-post evaluation. Both depart with the establishment of a baseline scenario (data prior to the URUC scheme), which serves as a benchmark for the ex-ante appraisal (prediction) of modelled impacts and ex-post evaluation of real life impacts. Whenever the ex-ante and ex-post evaluations are available in a case study, the two should be compared. The two evaluation stages need to rely on the same dataset, effectively measured through the common CURACAO indicators.

The table hereinafter, presents a selection of indicators addressed by CUPID and PROGRESS, which can be compatible with the constraints and the objectives of CURACAO.



Table 1 – List of Key Indicators

| | Impact area | Indicator | Quantitative indicator | Qualitative indicator |
|----|----------------------|---|------------------------|-----------------------|
| | Efficiency | | | |
| 1 | | Change on Average vehicle speed | | |
| 2 | | Feeling about traffic conditions | | |
| 3 | | Traveller perception of RUC system reliability | | |
| 4 | | Change in number of vehicles entering the zone | | |
| 5 | | Modal split | | |
| | | | | |
| | Equity | | | |
| 6 | | Level of user acceptance | | |
| 7 | | Level of perception of fairness | | |
| 8 | | Index of opinions from the different user groups | | |
| 9 | | Index of opinions on ease of access | | |
| 10 | | Level of user awareness | | |
| | | | | |
| | Environment | | | |
| 11 | | Change on CO ₂ emissions | | |
| 12 | | Change on CO emissions | | |
| 13 | | Change on NO _x emissions | | |
| 14 | | Change on particulate emissions | | |
| | | | | |
| | City Finances | | | |
| 15 | | Investment cost | | |
| 16 | | Operational and maintenance system costs | | |
| 17 | | Revenue from charges | | |
| 18 | | Revenue from fees | | |
| | | | | |
| | Safety | | | |
| 19 | | Level of perception of security condition changes | | |
| | | | | |
| | Health | | | |
| 20 | | Level of perception of air quality into the zone | | |
| | | | | |
| | Liveability | | | |
| 21 | | Level of perception of on-street liveability | | |
| | | | | |
| | Land Use | | | |
| 22 | | Change in housing location | | |
| 23 | | Change in activities' locations | | |
| 24 | | Change in used parking places | | |
| 25 | | Change in trips' destinations | | |

The list of common CURACAO indicators has been then fully adapted to the needs of the case study cities and finally consolidated during the February 2006 consortium meeting of London.

Preparation of a Baseline

The establishment of a baseline is required to provide a benchmark against which assessing the impacts of the CURACAO case study schemes. To do so efficiently, it is important to obtain both:

- I. a description the main **context characteristics** of the case studies;
- II. a quantitative presentation of the **key variables** (socio-economic, environmental, traffic, social and spatial) of the case studies, which will be obtained through the collection of the common CURACAO indicators for the time period preceding the operation of the URUC schemes.

The following tables show the list of baseline indicators collected for some case study cities.



Table 2 – BRISTOL – Baseline Indicators

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|--------------------|-------------|--|------------------|------------------|---------------------------------|---|---------------|--------------------------------|--|
| Efficiency | | | | | | | | | |
| 1 | | Change on Average vehicle speed | Statistics | Mph | Bristol | Peak 16.1mph Off peak 20.2 | 2004 | 2006 (not published yet). 2008 | Data collected by UK DfT for 'Speed in English Urban Areas'. |
| 2 | | Feeling about traffic conditions | Survey | % | Bristol | 90.6% of respondents thought peak hour congestion in Bristol city centre was either sometimes or always a problem | 1999 | N/A | Bristol Citizens Panel (representative group of 1022 people) |
| 3 | | Traveller perception of RUC system reliability | x | x | x | x | x | x | x |
| 4 | | Change in number of vehicles entering the zone | x | x | x | x | x | x | x |
| 5 | | Modal split | Statistics | % | Bristol | Travel to work by car 62% Travel to work by bus 10% Travel to work by foot or cycle 23% | 2005 | 2006 (not yet available) | Taken from Bristol Quality of Life Survey |
| | | Other? Effect of RUC on traffic conditions | Survey | % | Bristol | Improve: 30.5% Worsen: 36,5% No Effect: 21% Don't Know: 12.1% | 2003 | N/A | City centre survey of 760 people in Autumn 2003. |
| | | Private Car Traffic Volume | Statistics | Number | Inbound Central Bristol AM peak | 49,640 (Index 100) | 2003/4 | Annually | JLTO Indicator LPT6 |
| | | Private Car Traffic Volume | Statistics | Number | Sub regional area | 9,067 (million vehicle km's per year) | 2004 | Annually | JLTP Indicator LTP2 |
| Equity | | | | | | | | | |
| 6 | | Level of user acceptance | Survey | % | Bristol | See table below | 1999 | N/A | Bristol Citizens Panel (representative group of 1022 people) |
| Environment | | | | | | | | | |

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|----|--------------------|---|------------------|-------------------|-------------------|-----------------------------------|---------------|--------------------------|---|
| 11 | | Change on CO2 emissions | Statistics | Tonnes per capita | Bristol | 5.8 | 2005 | 2006 | NI 186 |
| | | Other? Change in NO2 emissions | Statistics | µg/m3 | Central Bristol | 49.5 | 2006 | 2007 | Average roadside NO2 |
| | Safety | | | | | | | | |
| | | Residents who feel safe or very safe whilst outside in their neighbourhood during the day | Survey | % | Bristol | 86% | 2005 | 2006 (not yet available) | Taken from Bristol Quality of Life Survey |
| | | Road Traffic Casualties | Statistics | Number | Bristol | 1,818 | 2005 | 2006 (not yet available) | Old BV99c Indicator |
| | | Killed or seriously injured road traffic accidents (KSI) | Statistics | Number | Bristol | 178 | 2005 | 2006 (not yet available) | NI 47 |
| | Health | | | | | | | | |
| | | Other? Perception of air quality where people live in Bristol | Survey | % | Bristol | 67% considered it to be a problem | 2004 | 2006 (not yet available) | Taken from Bristol Quality of Life Survey |
| | Liveability | | | | | | | | |
| | | Other? Liveability indicator – measure of cleanliness and attractiveness of local area | Survey | % | Bristol | 46% | 2005 | 2006 (not yet available) | Taken from Bristol Quality of Life Survey |
| | Land Use | | | | | | | | |
| 22 | | Bristol Population | Statistics | Number | Bristol | 398,300 | 2005 | 2006 | Bristol Annual Monitoring Report |
| 23 | | Net additional dwellings | Statistics | Number | Bristol | 1,712 | 2006 | 2007 | Bristol Annual Monitoring Report |
| 24 | | Total Jobs | Statistics | Number | Bristol | 228,500 | 2004 | 2005 (not yet available) | Bristol Annual Monitoring Report |



Table 3 – BRISTOL EQUITY – Level of User Acceptance

| Statement | Citizens' Panel results | | |
|---|----------------------------|---------|--------------------------|
| | Support / Strongly support | No view | Oppose / Strongly oppose |
| I would be in favour of charging for travel by car in the city (assuming exemptions for selected groups) if I had access to a fast and reliable public transport service into the city. | 66% | 7.1% | 26.8% |
| A charge for driving in the city would be effective in reducing car travel if a good quality reliable alternative to the car were in place | 64.9% | 9.2% | 25.8% |
| I would be in favour of charging for travel by car in the city (assuming exemptions for selected groups) if the money raised was spent on improving public transport, cycling facilities etc. | 63.3% | 6.2% | 30.5% |
| I would be in favour of charging for travel by car in the city (assuming exemptions for selected groups) if it meant that I could travel faster by car into the city. | 27.4% | 24.4% | 48.2% |



Table 4 – THE HAGUE – Baseline Indicators

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|---------------------|-------------|--|---|--------------------------------|---|----------------|--|---|---|
| Efficiency | | | | | | | | | |
| 4 | | Change in number of vehicles entering the zone | Statistics based on measurements by OBU and EVI beacons | Cars per morning (7:30 – 9:30) | Participants of the experiment | 170 | 18 September 2006 until 1 October 2006 | Statistics based on measurements by OBU and EVI beacons | Average number of cars between 7:30 and 9:30 AM |
| 5 | | Modal split | Statistics based on measurements by OBU and EVI beacons | % | Participants of the experiment | 80 | 18 September 2006 until 1 October 2006 | Statistics based on measurements by OBU and EVI beacons | Total car share |
| | | Ease in changing behavior | Not applicable | % | Participants of the experiment | Not applicable | Not applicable | Survey | % of participants taking much effort in changing their behavior |
| Equity | | | | | | | | | |
| 6 | | Level of user acceptance | Survey | % | Frequent users of motorway A12 living in Zoetermeer and not participating in the experiment | 29 | Not known | | % (probably) willing to take share in any next experiment |
| City Finance | | | | | | | | | |
| 15 | | Investment cost | Measurement | € | The full experiment | 1,300,000 | Not known | Measurement | Only for the (relatively short and small) experiment |
| 18 | | Revenue from fees | Measurement | € per participant | Participants of the experiment | 0 | 18 September 2006 until 1 October 2006 | Measurement | Direct costs of rewards |

Table 5 – LONDON – Baseline Indicators

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|-------------------|-------------|--|--|---|---|---|---------------|-------------------|---|
| Efficiency | | | | | | | | | |
| 1 | | Change on Average vehicle speed | regular bi-monthly moving car observer speed surveys | minutes per km | within charging zone | 1.8 min/km | 2005 | | pre-charging value = 2.3 min/km |
| 2 | | Feeling about traffic conditions | | | | | | | |
| 3 | | Traveller perception of RUC system reliability | | % of change in excess waiting time relative to the minimum standards | bus service in and around charging zone | 24% reduction | 2005 | | |
| 4 | | Change in number of vehicles entering the zone | boundary crossing counts, automatic and manual classified counts | % | within charging zone | reductions of 17% in total traffic, 21% in vehicles with four or more wheels and 31% in potentially-chargeable vehicles | 2005 | | in relation to equivalent pre-charging figures for 2002 |
| 5 | | Modal split | Travel survey | % increase of passengers entering the charging zone by bus | Charging zone boundary | 32% | 2005 | | |
| Equity | | | | | | | | | |
| 6 | | Level of user acceptance | TfL Business Survey | % agreeing to support for the current scheme providing that there is continued investment in PT | businesses within the charging zone | 47% | 2005 | | |

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|--------------------|-------------|--|--|---|-------------------------------------|---|---------------|-------------------|---|
| 8 | | Index of opinions from the different user groups | TfL Business Survey | proportion of agreeing respondents indicating support for the charging scheme | businesses within the charging zone | 48% retail 32% restaurants 61% hotels 39% distribution 50% financial 44% other | 2005 | | |
| 9 | | Index of opinions on ease of access | Boundary Business Survey | % agreeing to "CC reduced congestion inside the charging zone" | businesses within the charging zone | 25% | 2005 | | |
| Environment | | | | | | | | | |
| 11 | | Change on CO2 emissions | update of the London Atmospheric Emissions Inventory | Relative reduction, Kg/year | within charging zone | 16% reduction | 2005 | 2008 | emissions saving directly attributable to congestion charging traffic changes |
| 12 | | Change on CO emissions | | | | | | | |
| 13 | | Change on NOx emissions | update of the London Atmospheric Emissions Inventory | Relative reduction, Kg/year | within charging zone | 8% reduction | 2005 | 2008 | emissions saving directly attributable to congestion charging traffic changes |
| 14 | | Change on particulate emissions | update of the London Atmospheric Emissions Inventory | Relative reduction, Kg/year | within charging zone | 7% reduction | 2005 | 2008 | emissions saving directly attributable to congestion charging traffic changes |



| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|---------------------|-------------|---|--------------------------|--|---|----------------|---------------|-------------------|---|
| City Finance | | | | | | | | | |
| 15 | | Investment cost | Official reports | £ million | Total congestion charging scheme | | 2005 | | provisional out-turn figures for financial year 2005/2006 |
| 16 | | Operational and maintenance system costs | Official reports | £ million | Total congestion charging scheme | 88 | 2005 | | provisional out-turn figures for financial year 2005/2006 |
| 17 | | Revenue from charges | Official reports | £ million | Total congestion charging scheme | 144 | 2005 | | provisional out-turn figures for financial year 2005/2006 |
| 18 | | Revenue from fees | Official reports | £ million | Total congestion charging scheme | 65 | 2005 | | provisional out-turn figures for financial year 2005/2006 |
| Safety | | | | | | | | | |
| 19 | | Level of perception of security condition changes | Statistics | % accidents involving personal injuries Saved per year | charging zone and Inner Ring Road during charging hours | 11% | 2004 | | |
| Health | | | | | | | | | |
| 20 | | Level of perception of air quality into the zone | | | | | | | |
| Liveability | | | | | | | | | |
| 21 | | Level of perception of on-street liveability | Boundary Business Survey | % agreeing to "CC made the area inside the zone more pleasant" | businesses within the charging zone | | | | |
| Land Use | | | | | | | | | |
| 22 | | Change in housing location | | | | | | | |
| 23 | | Change in activities' locations | | | | | | | |
| 24 | | Change in used parking places | | | | | | | |
| 25 | | Change in trips' destinations | | | | | | | |



Table 6 – OSLO – Baseline Indicators

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|-------------------|-------------|--|---|---|---|--|--|---|--|
| Efficiency | | | | | | | | | |
| 1 | | Change on Average vehicle speed | 1: Real time monitoring using the toll tags 2: GPS survey (from 2003), manual car survey/test from 1990 3: Survey on PT (since 2005 with real-time-info system) | 1: Delay in minutes compared to free flow 2: Delay in minutes per kilometre compared to free flow 3: Delay compared to "ideal"/off-peak | 1: Selected arterials city-wide. Access motorways. 2: Selected links (17 routes), morning peak, afternoon peak 3: Selected routes | 1: N/A Free (flow) 2: 0 (free flow) 3: 0 (free flow/no delay) | 1: N/A 2: 1990 (2003 with GPS) 3: 2005 | 1: Continuous 2: Yearly surveys next in the fall of 2007. 3: Yearly surveys next in the fall of 2007. | |
| 2 | | Feeling about traffic conditions | Survey | Satisfaction with the road network | Regional (same as point 7-8) | N/A | 1989 | 2007 | Same survey as in 7-8 |
| 3 | | Traveller perception of RUC system reliability | | | | | | | N/A |
| 4 | | Change in number of vehicles entering the zone | 1: Statistics | 1: Average daily traffic (vehicles <3500kg, vehicles>3500kg | 1: The toll ring | 1: Approx 200.000 | 1:1989 | 1: Continuous | |
| 5 | | Modal split | 1: Survey 2: Travel survey | 1: Percentage of trips by mode 2: Percentage of trips by mode (trips by car in Oslo) | 1: City border, major roads 2: City and region | 1: N/A 2: 56% | 1: 1976 2: 1985 | 1: Every second year since 1976, next in 2008 2: N/A (last in 2005) | 2: Part of the national travel survey |
| Equity | | | | | | | | | |
| 6 | | Level of user acceptance | Survey | % | Yearly interviews (telephone) N=approx 1000. 6 | 30% | 1989 | 2007 | Interviews yearly (telephone) N=approx 1000, 6 |

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|--------------------|-------------|--|---|--|---|--|------------------------|---|---|
| 7 | | Level of perception of fairness | Survey | % using this as main reason for being negative to the toll ring | geographic areas. User groups: Age, | 57% | 1989 | 2007 | geographic areas (inside ring, border of ring, Oslo outside ring, 3 zones in surrounding county (west, north-east, south)) |
| 8 | | Index of opinions from the different user groups | Survey | % | gender, place of living, no. cars in household, must pass ring to work. | Too many variables to present in a single column!! | 1989 | 2007 | |
| 9 | | Index of opinions on ease of access | | | | | | | N/A |
| 10 | | Level of user awareness | Survey | % giving different answers to why they think the RUC system was introduced | Same as 7-8 | To detailed to put into a column | 1989 | 2007 | Same as 7-8 |
| Environment | | | | | | | | | |
| 11 | | Change on CO2 emissions | 1: Model (AirQuis) 2: Statistics (Statistics Norway) | 1: Change in CO2 emissions relatively to 1991 level 2: 1000 Tons CO2 from mobile sources (under group vehicles) | City, region | 1: 100 2: 563 | 1: 1991 2: 1991 | 1: In 2007/2008 new estimates for the situation in 2028 will be made 2: Last statistics from 2005. Figures for 2006 is expected. | The last model runs were made in 2006 with 2005 as a base year. Currently, new model runs are made with 2006 as a basis and forecasts for 2028 under different scenarios for the URC system |
| 12 | | Change on CO emissions | Statistics (Statistics Norway) | 2: 1000 Tons CO2 equivalents from mobile sources (undergroup vehicles) | City, region | 568 | 1991 | Last statistics from 2005. Figures for 2006 is expected. | |
| 13 | | Change on NOx emissions | Model (AirQuis) | Number of people exposed to levels of NO2, above national target | City, region | 652 | 2005 (Basis model run) | In 2007/2008 new estimates for the situation in 2028 will be made | |

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|----|---------------------|---|--|---|-------------------|--|------------------------|---|-------|
| 14 | | Change on particulate emissions | 1: Model (AirQuis) 2: Model (AirQuis) | 1: Number of people exposed to levels of PM10, above national target 2: Number of people exposed to levels of small particles (PM2.5), above national target | City, region | 1: 235,565 2: N/A. Can be found in background documents | 2005 (Basis model run) | In 2007/2008 new estimates for the situation in 2028 will be made | |
| | | Other? Change on CH4 emissions (methane) | Statistics (Statistics Norway) | Tons CH4 from mobile sources (under group vehicles) | City, region | 209 | 1991 | Last statistics from 2005. Figures for 2006 is expected. | |
| | City Finance | | | | | | | | |
| 15 | | Investment cost | Statistics | NOK | City, region | .. | 1989 | 2007 | |
| 16 | | Operational and maintenance system costs | Statistics | NOK | City, region | .. | 1989 | 2007 | |
| 17 | | Revenue from charges | Statistics | NOK | City, region | .. | 1989 | 2007 | |
| 18 | | Revenue from fees | Statistics | NOK | City, region | .. | 1989 | 2007 | |
| | Safety | | | | | | | | |
| 19 | | Level of perception of security condition changes | Statistics and model predictions | No of fatal + severe injury accidents per year | City, region | | | | |
| | Health | | | | | | | | |
| 20 | | Level of perception of air quality into the zone | | Percentage agreeing to the RUC system improved liveability | City, Region | | 2006 | 2007 | |
| | Liveability | | | | | | | | |
| 21 | | Level of perception of on-street liveability | | Percentage agreeing to the RUC system improved liveability | City, Region | 41.5% | 2006 | 2007 | |
| | Land Use | | | | | | | | |



| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|----|-------------|---------------------------------|------------------|--|-------------------|-----------------------------------|---------------|--|------------------------------------|
| 22 | | Change in housing location | Prognosis model | %change in population within the different zones | City, region | | 2003 | Modelled data for the new Oslo package 3 is available. | Modelled effect long run |
| 23 | | Change in activities' locations | Model | % change in jobs within the different zone | City, region | | 2003 | Modelled data for the new Oslo package 3 is available. | Modelled effect long run |
| 24 | | Change in used parking places | Travel survey | 1: % of people with parking space made available by employer 2: % of people with <u>free</u> parking space made available by employer | City and region | 2: 56% in 2005 (Oslo city centre) | 1985 | N/A (last in 2005) | No good parking statistics... |
| 25 | | Change in trips' destinations | Travel survey | % of trips by mode and destination | City and region | | 2: 1985 | 2: N/A (last in 2005) | Part of the national travel survey |



Table 7 – ROME – Baseline Indicators

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|--------------------|-------------|--|------------------|------------------|---------------------------------|--------------------------------------|---------------|-------------------|--|
| Efficiency | | | | | | | | | |
| 1 | | Change on Average vehicle speed | | | | | | | Not relevant to Rome case study |
| 2 | | Feeling about traffic conditions | | | | | | | No surveys on perceptions have been performed nor are expected |
| 3 | | Traveller perception of RUC system reliability | | | | | | | |
| 4 | | Change in number of vehicles entering the zone | Counting | Number | Daily by month | 80,000 | October 2005 | Yearly | |
| 5 | | Modal split | Survey | % | % | 59 private 19 PT 22 pedestrian | 2004 | 2009 | |
| Equity | | | | | | | | | |
| 6 | | Level of user acceptance | | | | | | | No surveys on perceptions have been performed not are expected |
| 7 | | Level of perception of fairness | | | | | | | |
| 8 | | Index of opinions from the different user groups | | | | | | | |
| 9 | | Index of opinions on ease of access | | | | | | | |
| 10 | | Level of user awareness | N° of fines | violations | % on traffic flows | 8% | 2006 | 2008 | |
| Environment | | | | | | | | | |
| 11 | | Change on CO2 emissions | Modelled | % | % emission decrease 2001 - 2005 | n.a. | 2005 | 2008 | |
| 12 | | Change on CO emissions | Modelled | % | % emission decrease 2001 - 2005 | 21% | 2005 | 2008 | |
| 13 | | Change on NOx emissions | Modelled | % | % emission decrease 2001 - 2005 | n.a. | 2005 | 2008 | |
| 14 | | Change on particulate emissions | Modelled | % | % emission decrease 2001 - 2005 | 15% | 2005 | 2008 | |



| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|----|---------------------|--|--|------------------|---------------------------------|----------------------|----------------------|-------------------|---|
| | | Other? BENZENE | Modelled | % | % emission decrease 2001 - 2005 | 27% | 2005 | 2008 | |
| | City Finance | | | | | | | | |
| 15 | | Investment cost | <ul style="list-style-type: none"> • Optimisation central LTZ • Trastevere LTZ • S. Lorenzo LTZ | € | | 1M€ 1 M€ 550K€ | 2006 2006 2006 | | |
| 16 | | Operational and maintenance system costs | All the LTZ system | € | | 3.2M€ | 2006 | | |
| 17 | | Revenue from charges | N° of permits issued | N° permits sold | | | 2005 | | |
| 18 | | Revenue from fees | N° of violations | Violations*fee | | 58M€ | | | The only available value is the total for the baseline. |



Table 8 – STOCKHOLM – Baseline Indicators

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|-------------------|-------------|--|--|---|---|----------------|---------------|---|--|
| Efficiency | | | | | | | | | |
| 1 | | Change on Average vehicle speed | 1: number plate matching 2: ord spot speed detectors 3: floating-car | Delay (extra travel time % of free flow conditions) | Selected arterials city-wide. Access motorways (inwards) morning peak | 175% | April 2005 | Data for the trial already available. Will be monitored also during the next phase | Also available for other road-(street-) types, times of day, direction |
| 2 | | Feeling about traffic conditions | survey | % agreeing to "traffic in/through the city causes severe congestion problems in inner city" | Region | 40% | Oct 2005 | Data for the trial available. No monitoring planned for the next phase | |
| 4 | | Change in number of vehicles entering the zone | Automatic registration | No of veh | Charging zone | 440,000 | Oct 2005 | Data for the trial already available. Will be monitored also during the next phase | |
| 5 | | Modal split | Travel survey | % of trips by car | Cordon | 33% | Oct 2004 | Data for the trial available. No travel survey planned for the next phase | Available also for other scales (city, region), and for pass km |
| | | Modal split (over the cordon) | Road side observation | % (vehicles) | Cordon | | | | For the next phase. Dates to be decided |
| Equity | | | | | | | | | |

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|---------------------|-------------|---------------------------------|---|--|-------------------|--------------------------|---------------|---|--|
| 6 | | Level of user acceptance | Survey | % agreeing to "charging trial was a good idea" | Region | 42% | Oct 2005 | Data for the trial available. No monitoring planned for the next phase | |
| 7 | | Level of perception of fairness | | | | | | | NA |
| 10 | | Level of user awareness | survey | % correct respons when asked about charging levels etc | Region | 41% | Oct 2005 | Data for the trial available. No monitoring planned for the next phase | |
| Environment | | | | | | | | | |
| 11 | | Change on CO2 emissions | Model based on estimated VMT + speed profiles | Relative reduction, Kg/year | Charging zone | 14% reduction | April 2006 | Data for the trial available. Monitoring in next phase uncertain | Modelled value. Diff With/without charging |
| 12 | | Change on CO emissions | | Kg/year | | | | | NA |
| 13 | | Change on NOx emissions | Model based on estimated VMT + speed profiles | Relative reduction, Kg/year | Charging zone | 7% reduction | April 2006 | Data for the trial available. Monitoring in next phase uncertain | |
| 14 | | Change on particulate emissions | Model based on estimated VMT + speed profiles | Relative reduction, Kg/year | Charging zone | 9% reduction | April 2006 | Data for the trial available. Monitoring in next phase uncertain | |
| | | Estimated health effect | Model | Pre-mature deaths saved per year | Region | 30 deaths saved per year | | Data for the trial available. | |
| City Finance | | | | | | | | | |
| 15 | | Investment cost | Official reports | SEK | Total system | 2,000,000,000 | | | Budget. Actual figures may be possible to obtain |



| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|--------------------|-------------|---|--------------------|--|-------------------|----------------------------|---------------|---|--|
| 16 | | Operational and maintenance system costs | Official reports | SEK/year | Total system | 220,000,000 | | | Budget. Actual figures may be possible to obtain |
| 17 | | Revenue from charges | Official reports | SEK/year | Total system | 0 | | Aug 2008 | Data already available for the trial |
| 18 | | Revenue from fees | Official reports | SEK/year | Total system | 0 | | Aug 2008 | Data already available for the trial |
| Safety | | | | | | | | | |
| 19 | | Level of perception of security condition changes | Model based on VMT | No of fatal + severe injury accidents Saved per year | Region | 15 injuries saved per year | April 2006 | Data for the trial available. No monitoring planned for the next phase | No perception data. Difference in expected no of accidents! |
| Health | | | | | | | | | |
| 20 | | Level of perception of air quality into the zone | Survey | % agreeing to "Traffic through inner city causes air quality problems" | Region | 56% | Oct 2005 | | NA |
| | | Estimated health effect | Model | Pre-mature deaths saved per year | Region | 30 deaths saved per year | | Data for the trial available. | |
| Liveability | | | | | | | | | |
| 21 | | Level of perception of on-street liveability | | | | | | | Baseline + Data for the trial available. However, low comparability (weather effect) Thus, we would not want to present the data |
| Land Use | | | | | | | | | |



| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|----|-------------|---------------------------------|------------------|--|-------------------|----------------|----------------|--|-------------------------------|
| 22 | | Change in housing location | Model | %effect on housing within the zone | region | -1.2% | April2006 | Modelled data for the trial available. No monitoring planned for the next phase | Modelled effect long run |
| 23 | | Change in activities' locations | Model | % of jobs within the zone | region | +1.8% | April2006 | Modelled data for the trial available. No monitoring planned for the next phase | Modelled effect long run |
| 24 | | Change in used parking places | Survey | No of vehicles on park+ride lots | region | 15,500 | April-May 2005 | Data for the trial available. No monitoring planned for the next phase | Park & Ride only |
| 25 | | Change in trips' destinations | Survey | Destination within the zone (% of all trips) | Region | 21.8% | Oct 2004 | Data for the trial available. No monitoring planned for the next phase | Also available by origin zone |

Most indicators (all, except those marked NA) are available for *before* (often Oct 2004) and *during* (often April 2006) the trial. The permanent system (to be introduced in July 2007) will be subject to a considerably smaller monitoring scheme, with a strong focus on traffic efficiency



The ex-post evaluation

Thanks to the monitoring of RUC schemes implemented by the CURACAO core cities the Indicators tables have been updated by filling in new information. Unfortunately, not all the cities were able to perform new measurements. That is the reason why the comparison between ex-ante and ex-post state of RUC implementation will be performed only for London, Stockholm and, partially, Rome.

The following tables represent the updated CURACAO common indicators.



Table 9 – LONDON – Updated CURACAO Indicators

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Measurement Value | Measurement Date | Next Measurements | Notes |
|----|-------------------|--|---|--|---|--|-----------------------------------|-------------------|---|
| | Efficiency | | | | | | | | |
| 1 | | Change on Average vehicle speed | Regular bi-monthly moving car observer speed surveys | minutes per km | within charging zone | An increase of 0.1 min/km. An increase of 0.5 min/km. | Early 2006 Mid – Late 2006 | 2007 | Post-charging value = 1.6 min/km 2003. During 2006, the level of traffic varied considerably and an increase in the number of street works significantly increased congestion within the charging zone. |
| 2 | | Feeling about traffic conditions | This appears to be unquantifiable – no indicators or measurements are given. | | | | | | |
| 3 | | Traveller perception of RUC system reliability | | % of change in excess waiting time relative to the minimum standards | bus service in and around charging zone | An increase of 2% in the excess waiting time relative to 2005 data. | 2006 | | Reliability of bus services in and around the charging zone has seen some deterioration, although it still remains substantially better than pre-charging levels. |
| 4 | | Change in number of vehicles entering the zone | Boundary crossing counts, automatic and manual classified counts | % | within charging zone | Reductions of 16% in total traffic, 21% in vehicles with four or more wheels and 30% in potentially-chargeable vehicles. | 2006 | | Compared to 2002 |

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Measurement Value | Measurement Date | Next Measurements | Notes |
|--------------------|-------------|-------------------------------------|--|---|-------------------------------------|---|------------------|-------------------|---|
| 5 | | Modal split | Travel survey | % increase of passengers entering the charging zone by bus | Charging zone boundary | An increase of 25%. | 2006 | | Compared to 2002 |
| Equity | | | | | | | | | |
| 6 | | Level of user acceptance | TfL Business Survey | % agreeing to support for the current scheme providing that there is continued investment in PT | businesses within the charging zone | This information is not available in the 5 th Report. | | | |
| 7 | | Level of perception of fairness | TfL Business Survey | proportion of agreeing respondents indicating support for the charging scheme | businesses within the charging zone | | | | |
| 8 | | Index of opinions on ease of access | Boundary Business Survey | % agreeing to "CC reduced congestion inside the charging zone" | businesses within the charging zone | In the 4 th Monitoring Report, the Boundary Area was a specific case study, which is not included on the 5th Report. | | | |
| 10 | | Level of user awareness | | | | | | | |
| Environment | | | | | | | | | |
| 11 | | Change on CO2 emissions | update of the London Atmospheric Emissions Inventory | Relative reduction, Kg/year | within charging zone | Decreased by 3% | 2006 | | Between 2003 following the introduction of congestion charging and 2006, assuming a stable traffic mix. |
| 12 | | Change on CO emissions | | | | | | | |

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Measurement Value | Measurement Date | Next Measurements | Notes |
|----|---------------------|--|--|-----------------------------|----------------------------------|-------------------|------------------------|-------------------|---|
| 13 | | Change on NOx emissions | Update of the London Atmospheric Emissions Inventory | Relative reduction, Kg/year | within charging zone | Decreased by 17% | 2006 | | Between 2003 following the introduction of congestion charging and 2006 assuming a stable traffic mix. |
| 14 | | Change on particulate emissions | Update of the London Atmospheric Emissions Inventory | Relative reduction, Kg/year | within charging zone | Decreased by 24% | 2006 | | Between 2003 following the introduction of congestion charging and 2006. There is some evidence of a differential reduction in the concentration of PM10 at the roadside in the charging zone compared with other parts of London, but the causes of this are not yet clear, assuming a stable traffic mix |
| | City Finance | | | | | | | | |
| 15 | | Investment cost | Official reports | £ million | Total congestion charging scheme | | Provisional for 2006/7 | | |
| 16 | | Operational and maintenance system costs | Official reports | £ million | Total congestion charging scheme | 90 | Provisional for 2006/7 | | |
| 17 | | Revenue from charges | Official reports | £ million | Total congestion charging scheme | 158 | Provisional for 2006/7 | | |
| 18 | | Revenue from fees | Official reports | £ million | Total congestion charging scheme | 55 | Provisional for 2006/7 | | |

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Measurement Value | Measurement Date | Next Measurements | Notes |
|----|--------------------|---|--------------------------|--|---|---|------------------------|-------------------|--------------------------------|
| | | Net Revenue | Official reports | £ million | Total congestion charge scheme | 123 | Provisional for 2006/7 | | |
| | Safety | | | | | | | | |
| 19 | | Level of perception of security condition changes | Statistics | % accidents involving personal injuries Saved per year | charging zone and Inner Ring Road during charging hours | 11% less accidents | March 05 – Feb 06 | | Compared to the previous year. |
| | | Road Traffic Casualties | Statistics | % Accidents involving personal injury | In the Zone Ring Road Rest of London | Pedestrian Accidents increases 1%, Non Pedestrians Decreased by 1% | Mar 2005 - Feb 2006 | | Baseline Mar 2004 - Feb 2005 |
| | | Killed or seriously injured road traffic accidents (KSI) | Statistics | % Decrease in fatalities. | Within Central London Congestion Charge Zone | Serious – Decrease by 3% Slight – Decrease by 10% Fatal – no change | 2006 | | Compared to 2005 |
| | Health | | | | | | | | |
| 20 | | Level of perception of air quality into the zone | | | | | | | |
| | Liveability | | | | | | | | |
| 21 | | Level of perception of on-street liveability | Boundary Business Survey | % agreeing to "CC made the area inside the zone more pleasant" | businesses within the charging zone | In the 4 th Monitoring Report, the Boundary Area was a specific case study, which is not included on the 5th Report. | | | |
| | | Other? Liveability indicator – measure of cleanliness and attractiveness of local area | | | | | | | |

Table 10 – ROME – Updated CURACAO Indicators

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|-------------------|-------------|--|------------------|------------------|-------------------|--------------------------------------|---------------|-------------------|-------|
| Efficiency | | | | | | | | | |
| 1 | | Change on Average vehicle speed | - | | | | | | |
| 2 | | Feeling about traffic conditions | - | | | | | | |
| 3 | | Traveller perception of RUC system reliability | - | | | | | | |
| 4 | | Change in number of vehicles entering the zone | Counting | N° Veh. | Daily by month | 72,000 | May 2008 | Yearly | |
| 5 | | Modal split | Survey | % | % | 59 private 19 PT 22 pedestrian | 2004 | 2009 | |
| | | Other? Effect of RUC on traffic conditions | - | | | | | | |
| | | Private Car Traffic Volume | - | | | | | | |
| Equity | | | | | | | | | |
| 6 | | Level of user acceptance | - | | | | | | |
| 7 | | Level of perception of fairness | - | | | | | | |

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|---------------------|-------------|--|--|------------------|---------------------------------|-----------------------|---------------|-------------------|---|
| 8 | | Index of opinions from the different user groups | - | | | | | | |
| 9 | | Index of opinions on ease of access | - | | | | | | |
| 10 | | Level of user awareness | N° of fines | violations | % on traffic flows | 11% | May 2008 | 2009 | |
| Environment | | | | | | | | | |
| 11 | | Change on CO2 emissions | Modelled | % | % emission decrease 2005 - 2008 | n.a. | 2005 | 2008 | |
| 12 | | Change on CO emissions | Modelled | % | % emission decrease 2005 - 2008 | 10% | 2005 | 2008 | |
| 13 | | Change on NOx emissions | Modelled | % | % emission decrease 2005 - 2008 | n.a. | 2005 | 2008 | |
| 14 | | Change on particulate emissions | Modelled | % | % emission decrease 2005 - 2008 | 3% | 2005 | 2008 | |
| | | Other? | | | | | | | |
| | | Change in Benzene | Modelled | % | % emission decrease 2005 - 2008 | n.a. | 2005 | 2008 | |
| City Finance | | | | | | | | | |
| 15 | | Investment cost | <ul style="list-style-type: none"> Trastevere LTZ San Lorenzo LTZ VMS information panels at the entrance gates (Presegnalamento) | € | | 1M€ 611k€ 283k€ | 2007 | | These costs are actually incurred by the Municipality |
| 16 | | Operational and maintenance system costs | <ul style="list-style-type: none"> Trastevere LTZ San Lorenzo LTZ VMS information panels at the entrance gates (Presegnalamento) | | | 88k€ 62k€ 5k€ | 2007 | | |

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|----|-------------|----------------------|----------------------|-------------------------------------|-------------------|----------------|---------------|-------------------|--|
| 17 | | Revenue from charges | N° of permits issued | N° permits sold | | 15M€ | 2007 | yearly | |
| 18 | | Revenue from fees | estimated | Average N° of violations/year * fee | | 74.8M€ | 2007 | yearly | The violations are handled by the municipal police; ATAC is not the owner of this data. The figure of the violations is taken from official data. |
| | | Other? | | | | | | | |

Table 11 – STOCKHOLM – Updated CURACAO Indicators

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|----|-------------------|--|--|---|---|--|---|----------------------------------|--|
| | Efficiency | | | | | | | | |
| 1 | | Change on Average vehicle speed | 1: number plate matching 2: ord spot speed detectors 3: floating-car | Delay (extra travel time % of free flow conditions) | Selected arterials city-wide. Access motorways (inwards) morning peak | 205% 124% 105% 94% | April 2005 April 2006 (trial) October 2007 (permanent scheme) April 2008 | Will be monitored in the future. | Also available for other road-(street-) types, times of day, direction |
| 2 | | Feeling about traffic conditions | survey | % agreeing to "traffic in/through the city causes severe congestion problems in inner city" | Region | 34% 16% | Oct 2005 May 2006 | Data for the trial available. | |
| 3 | | Traveller perception of RUC system reliability | | | | | | | NA |
| 4 | | Change in number of vehicles entering the zone | Automatic registration | No of veh | Charging zone | 440,000 366,000 371,000 383,000 | Oct 2005 April 2006 (trial) Oct 2007 April 2008 | | During 6am-7pm |

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|--------------------|-------------|---|------------------|---|-------------------|------------------------------------|------------------------|--|---|
| 5 | | Modal split | Travel survey | % of trips by car % of trips by public transport | Cordon | 32% car/ 60% PT 27% car/ 68% PT | Oct 2004 March 2006 | Data for the trial available. No further travel survey planned. | Available also for other scales (city, region), and for pass km |
| | | Other? Effect of RUC on traffic conditions | | % of exemptions of passages over cordon | | 28 25 | 2006 Trial 2008 | | Exemption rules changes from trial to permanent scheme |
| | | Private Car Traffic Volume | Manual counting | No of private car traffic passing cordon/day | Cordon | 299,496 210,329 | 2004 2006 | | During charging hours 6.30 am-6.29 pm |
| Equity | | | | | | | | | |
| 6 | | Level of user acceptance | Survey | % agreeing to "charging trial was a good or very good idea" | Region | 44% 54% | Oct 2005 March 2006 | Data for the trial available. | |
| | | Level of user acceptance | survey | % agreeing to having a positive attitude to permanent congestion tax | Municipality | 48% | Nov 2007 | | |
| 7 | | Level of perception of fairness | | | | | | | NA |
| 10 | | Level of user awareness | survey | % correct respons when asked about monthly charging costs for average motorists | Region | 41% 48% | Oct 2005 March 2006 | Data for the trial available. No further travel survey planned. | |
| Environment | | | | | | | | | |

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|---------------------|-------------|--|---|----------------------------------|-------------------|-----------------------------|-----------------------------------|---|---|
| 11 | | Change on CO2 emissions | Model based on estimated VMT + speed profiles | Relative reduction, Kg/year | Charging zone | 13% reduction (inner city) | April 2006 | Data for the trial available. No further monitoring. | Modelled value. Diff With/without charging |
| 12 | | Change on CO emissions | | Kg/year | | | | | NA |
| 13 | | Change on NOx emissions | Model based on estimated VMT + speed profiles | Relative reduction, Kg/year | Charging zone | 8.5% reduction (inner city) | April 2006 | Data for the trial available. No further monitoring. | |
| 14 | | Change on particulate emissions | Model based on estimated VMT + speed profiles | Relative reduction, Kg/year | Charging zone | 13% reduction (inner city) | April 2006 | Data for the trial available. No further monitoring. | |
| | | Other? Change in NO2 emissions | Model | Pre-mature deaths saved per year | Region | 30 deaths saved per year | | Data for the trial available. | |
| City Finance | | | | | | | | | |
| 15 | | Investment cost | Official reports | SEK | Total system | 1,900,000,000 | | | |
| 16 | | Operational and maintenance system costs | Official reports | SEK/year | Total system | 380,000,000 | 2008 | | Budget incl. administration of appeals at tax authorities |
| 17 | | Revenue from charges | Official reports | SEK/year | Total system | 760,000,000 704,000,000 | Trial 2006 Aug 2007- June 2008 | | Estimated from January-July during trial 2006 Based on claim rather than final revenues. |
| 18 | | Revenue from fees | Official reports | Surcharges SEK/year | Total system | 151,000,000 | Aug 2007- June 2008 | | Based on claim rather than final revenues. |

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|----|--------------------|---|--------------------|--|-------------------|----------------------------|------------------------|---|---|
| | | Other? | | | | | | | |
| | Safety | | | | | | | | |
| 19 | | Level of perception of security condition changes | Model based on VMT | No of fatal + severe injury accidents Saved per year | Region | 15 injuries saved per year | April 2006 | Data for the trial available. No monitoring planned for the next phase | No perception data. Difference in expected no of accidents! |
| | | Residents who feel safe or very safe whilst outside in their neighbourhood during the day | | | | | | | NA |
| | | Road Traffic Casualties | | | | | | | |
| | | Killed or seriously injured road traffic accidents (KSI) | Official reports | Number of fatalities and severely injured | Municipality | 238 289 298 | 2005 2006 2007 | | |
| | Health | | | | | | | | |
| 20 | | Level of perception of air quality into the zone | Survey | % agreeing to "Traffic through inner city causes air quality problems" | Region | 56% 45% | Oct 2005 March 2006 | | |
| | | Other? Perception of air quality where people live | Model | Pre-mature deaths saved per year | Region | 30 deaths saved per year | | Data for the trial available. | |
| | Liveability | | | | | | | | |

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|----|-----------------|---|------------------|---|---------------------|--|---------------|--|--|
| 21 | | Level of perception of on-street liveability | | | | | | | Baseline + Data for the trial available. However, low comparability (weather effect) Thus, we would not want to present the data |
| | | Other? Liveability indicator – measure of cleanliness and attractiveness of local area | | | | | | | NA |
| | Land Use | | | | | | | | |
| 22 | | Population | Official reports | Number of inhabitants | Region/municipality | 1,889,945 / 77,038 1,918,104/ 782,885 | 2005 2006 | | |
| 23 | | Net additional dwellings | Official reports | Number of apartments incl. single dwellings | Region/municipality | 903,687 / 418,684 913,222 / 423,000 | 2005 2006 | | |
| 24 | | Total Jobs | Official reports | Number of employees | Region | 4,263,000 4,341,000 | 2005 2006 | | |
| | | Change in housing location | Model | %effect on housing within the zone | region | -1,2% | April2006 | Modelled data for the trial available. No monitoring planned for the next phase | Modelled effect long run |

| N. | Impact area | Indicator | Measurement Type | Measurement Unit | Measurement Scale | Baseline Value | Baseline Date | Next Measurements | Notes |
|----|-------------|---------------------------------|------------------|--|-------------------|----------------|------------------------|--|-------------------------------|
| | | Change in activities' locations | Model | % of jobs within the zone | region | +1,8% | April 2006 | Modelled data for the trial available. No monitoring planned for the next phase | Modelled effect long run |
| | | Trips destination | Survey | Destination within the zone (% of all trips) | Region | 22 % 23 % | Oct 2004 April 2006 | Data for the trial available. No monitoring planned for the next phase | Also available by origin zone |